THE CHILD AND HIS SPELLING

W·A·COOK AND M·V·O'SHEA

CHILDHOOD AND YOUTH SERIES

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THE CHILD AND HIS SPELLING

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THE CHILD AND HIS SPELLING

AN INVESTIGATION OF THE PSYCHOLOGY
OF SPELLING, INDIVIDUAL AND SEX DIFFERENCES IN SPELLING
ABILITIES AND NEEDS, THE CHARACTER AND RANGE OF
THE SPELLING VOCABULARY, AND THE PRACTICAL
PROBLEMS OF TEACHING SPELLING

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CHILDHOOD AND YOUTH SERIES
EDITED BY M. V. O'SHEA

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THE CHILD AND HIS SPELLING

PART I

LEARNING TO SPELL

THE CHILD AND HIS SPELLING

CHAPTER I

INTRODUCTION

Present-day interest in spelling

IF one may judge by what one reads in the newspapers and magazines, the subject in the schools of chief interest to the layman to-day is spelling. There is evidently a wide-spread belief that graduates of the elementary schools can not spell so well now as they did in earlier times. A number of investigators have attempted to show that this belief is not founded on fact, but the newspapers are incessantly repeating the statement that we are constantly losing ground in spelling efficiency. Various explanations are offered for this unhappy condition of affairs; but the reason most frequently given is that the energy of pupils is being dissipated by the study of "fads," and that they are not in consequence being drilled sufficiently in spelling. On the other hand, one may read statements to the effect that it does not make much difference whether pupils are trained in spelling or not, because "good spellers are born, and not made." There seems to be a settled conviction in the minds of some persons that certain types of pupils never can learn to spell well, because they do not possess the particular intellectual "powers" required for success in this undertaking.

Conflicting opinions and counsel

Meanwhile every one seems to feel competent to give advice respecting the best methods of teaching this study. It is apparently regarded by most laymen and some educational people as a simple subject, so that any sensible person can formulate sound opinions relating to the way in which pupils may be got to learn it most readily and effectively. In consequence of this attitude on the part of all sorts of people, within and without the schools, teachers are much confused because of the variety of counsel which is being given them. /They are advised now by this person to give more attention in their daily programs to *oral* spelling; while another person tells them they ought to abandon oral spelling altogether, and concentrate wholly upon written work. Still another person will advise that the text-book should be discarded altogether, and that lists of words for spelling should be taken from all the studies being pursued by the pupil. There are those who maintain that if the spelling in the regular written exercises be properly looked after, it will not be necessary to have any special period devoted solely to drill in spelling. And so one might go on at length along this line, giving evidence showing that there appears to be slight agreement among laymen or teachers respecting either the causes of our deficiencies in spelling, or the most efficient methods of remedying them.

The reason for differences of opinion

The chief reason why there is this disagreement in regard to spelling is because we are dealing with an extremely complex subject, though it has been generally treated as if it were exceedingly simple; and we have not thought it necessary to investigate it thoroughly in order to discover the factors which are operating to determine success or failure in the way it is presented in the schools/ The layman can not, of course, give the time required for an analysis of this subject. He thinks something is wrong; he feels pupils can not spell as well as they ought to; and he concludes that they should be subjected to more rigorous drill in the school. The layman's remedy for all shortcomings of this sort is to give the pupil more of the thing in which he is defective—"drill on it harder," he says. It is his conception that when a thing is not properly learned so that it can be used, it is because there has not been enough of time spent on it. And the layman is not the only one who can not take the time to look into the mysteries of these things. The busy teacher, too, is so overcrowded that he can not analyze these problems, because he must pass rapidly from one task to another during the entire day. He often realizes that the spelling problem is complicated, that there are various factors cooperating to produce the results that concern us, and that the situation should be examined more critically than it ever has been; and yet he is almost if not quite helpless to do anything about it. He must go ahead and teach the day's lesson the best he can, according to the light that has come to him from one source or another—mainly the traditional belief in the way the child learns. In this respect it is no more different with spelling than it is with all the other subjects in the program.

Why pupils find spelling hard and uninteresting

At the same time, some attempts have been made to apply careful analytic methods to the problems of spelling in order to discover, if possible, the reasons why pupils do not learn it more accurately and readily. Recently much has been said about the unphonetic character of our words, which makes it practically impossible for a child to learn them without supreme effort of memory. The men who have been delving into this matter have been so impressed with the difficulty of learning to spell English words that they have determined to revise many of them with a view to reducing them, as far as possible, to a phonetic basis. But no matter how sympathetic we may be toward this spelling reform, we must appreciate, nevertheless, that for many years to come children will have to be taught to spell English words in their present forms, with perhaps a dozen or two exceptions. In this connection, it may be worth while to note that there probably is no study in the curriculum which is less attractive to pupils than spelling as it is ordinarily taught. In the course of the investigation described in this volume, inquiry was frequently made of teachers regarding the interest which their pupils took in spelling, and the answer was always the same in effect—children almost hate their spelling, except when they can make it an occasion for a contest of some sort, as in "spelling down." There seems to be little if anything about the memorizing by main force of the form of a word which appeals to the typical pupil anywhere in the schools.

The purpose and scope of the present volume

With a view to contributing something to the solution of these various problems, the authors of this volume have conducted a series of investigations extending over a considerable period of time. The problems which have been studied are those which the teacher encounters in his every-day work in the class room. The method of investigation has included, first, an examination of the spelling history and abilities of a large number of pupils in a rather general way; and, second, a study of a small group in a very thoroughgoing manner. University and high-school students have been tested to determine their ability to spell a selected list of words, and an effort has been made to get from the students themselves an explanation of their own processes in attempting to spell the words given them, and of their training in respect to all the matters that might have a bearing on spelling efficiency. It became apparent as the results of these inquiries were gained that an investigation of this sort could not do more than open up the real vital problems of spelling ability, of method of teaching, and of the range of one's spelling vocabulary. In order to get at these problems in a more intimate way than could be done in studying a large body of pupils, it was necessary to have a limited group (it comprised four boys in the seventh and eighth grades, one a good speller, one an average speller, and two who were inferior in spelling) who could be taught spelling in a great variety of ways, and who could be followed from day to day in every phase of their reaction to the lessons given them and the tests applied to them. The results of these investigations are presented in Part I of this volume. Throughout the work, it was the aim to trace the steps by which each pupil mastered the words in the lists used. A record was kept of every detail of each pupil's experience in conquering new words, whether easy or difficult. An analysis was made of the structure of each word taught, to find out what part of it occasioned the chief trouble, and whether or not the crucial point was the same for all pupils. Individual differences in method of attacking words, in the types of errors made, in the readiness of overcoming the errors, and in getting a mastery of the correct forms were all carefully recorded, and the results are presented in this volume. It is believed that in this way a rather interesting and valuable body of material is brought together and interpreted with respect to the practical problems of teaching spelling economically and effectively to pupils of different intellectual types. Suggestions regarding the treatment of pupils in mass and as individuals are made frequently throughout the discussion of the various topics which are considered.

The spelling vocabulary

The most important problem connected with the teaching of spelling has reference, no doubt, to the character and range of the vocabulary to be taught. How many words and what ones should be presented in the elementary and high schools? All sorts of answers have been given to this question by various individuals; and these have been based almost wholly upon individual opinion formed in one way or another. But it has seemed to the authors of this volume that the only rational way to determine the range of a spelling vocabulary is to find out in some manner what words people actually use in the communications of every-day life. So it was decided to examine a large amount of correspondence in order to see what words were employed. This correspondence was selected so as to represent various interests and callings and occasions, and it is probable that it is quite typical of the needs of most American people in these times. All the words used were tabulated, and the frequency of the appearance of each word was determined. The results of the investigation are presented in Part II of this book. After this list had been worked out, and it seemed apparent what words played the leading rôle in the every-day writing of American people, it was decided to test the list by an examination of fresh correspondence, and by a study of the letters written by people in newspapers, these letters having reference to various topics, and produced by people in different walks of life. The list secured by the authors of this volume, which began to have the appearance of a standard list, was then compared with a list suggested by Ayres in an investigation which he made of business correspondence. It was found that the list derived from the family correspondence, and applied to all sorts of everyday writing, proved to be substantially a standard list. So the authors feel confident that the lists and tables as presented in Part II indicate quite accurately the needs of the typical American to-day in respect to written expression.

In order to throw further light on this matter, there have been added as an Appendix to this volume several lists of the words that children use more or less spontaneously in the different grades of the schools. It was thought that a comparison of these words with those which adults find necessary in order to express themselves effectively in every-day life might prove both interesting and useful.

The lists that are presented in this volume may be regarded as well adapted to the needs of American pupils who do not go into special pursuits, wherein they will be required to use special technical terms that are rarely written by the great majority of people. Specialists will have need for this general standard list, if it may be so considered; but they will need in addition a few technical terms which can be acquired when the occasion for using them arises.

CHAPTER II

THE VALUE OF RULES FOR SPELLING

Present opinion and practise

AN examination of modern texts in spelling reveals a striking lack of agreement regarding the value of rules for the learner. *The Natural Speller and Word Book* does not contain a single rule, and there are other spellers that omit rules almost entirely. But *The Normal Course in Spelling* goes to the other extreme, with eighteen rules presented in the course of eighteen consecutive lessons, seven of them having reference to plural formations alone. The length and simplicity of rules in different texts vary from "Nouns in *o* after a vowel add *s* for the plural," with no exceptions, to "In monosyllables and words accented on the last syllable, a final consonant after a single vowel doubles before a suffix beginning with a vowel (*x*, *k* and *y* are never doubled), except when, in the derivative, the accent is thrown from the last syllable of the primitive," followed by the usual "other exceptions."

In order to ascertain, if possible, the worth of ordinary rules in spelling, the following list of fifty words was submitted to certain classes of university students and high-school pupils. This list was supposed to be a fair test of spelling ability, since it contained only such terms as are found in nearly all typical spelling-books of the present day. Doubtless most of the students examined had spelled all of these words in their spelling lessons, at one time or another, though it is not maintained that the list as a whole is one of great service in ordinary written communication.

1. ancient
2. seizure
3. foreign
4. freight
5. their
6. conceivable
7. piercing
8. thievish
9. grievance
10. sieve
11. achievement
12. nervous
13. encouragement
14. awful
15. argument
16. peaceable
17. changeable
18. courageous
19. shoeing
20. singeing
21. mileage
22. pitiable
23. furious
24. greedier
25. fanciful
26. loveliest
27. buried
28. plenteous
29. conveyance
30. essayist
31. betrayal
32. dismayed
33. paid
34. daily
35. concurrence
36. regretted
37. conference
38. rebellion
39. gases
40. stoppage
41. quitting
42. benefited
43. quarreling
44. potatoes
45. folios
46. music
47. frolic
48. derrick
49. tying
50. dying

Material used for the test

It should be noted that this list is composed of words which exemplify seven rules, with their exceptions. The first eleven words come under a rule which is often expressed as "*i* before *e* except after *c*, or when sounded like *a*, as in *neighbor* and *weigh*." The words, *piercing, thievish, grievance, sieve* and *achievement,* illustrate the first clause of the rule, *conceivable,* the second, and *freight* and *their* the third; *seizure* and *foreign* are exceptions to the first clause, and *ancient* is an exception to the second clause.

Seizure, conceivable, piercing, thievish, grievance, achievement, nervous, encouragement, awful, argument, peaceable, changeable, courageous, shoeing, singeing and *mileage* are designed to cover a rule which may be stated thus: "Final *e* is dropped before a suffix beginning with a vowel; but it is retained (1) when the suffix begins with a consonant, (2) when a word in *-ce* or *-ge* adds *-able* or *-ous,* (3) to keep the pronunciation of the word constant, (4) to maintain the identity of a word." *Seizure, conceivable, piercing, thievish, grievance* and *nervous* illustrate the dropping of *e; mileage* is an exception; *achievement* and *encouragement* show retention of *e* under case (1); *awful* and *argument* are exceptions to case (1); *peaceable, changeable* and *courageous* come under case (2); *shoeing* and *singeing* stand for cases (3) and (4) respectively.

Pitiable, furious, greedier, fanciful, loveliest, buried, plenteous, conveyance, essayist, betrayal, dismayed, paid and *daily* come under the rule on final *y*: "Final *y* after a consonant changes to *i* before all suffixes not beginning with *i;* final *y* after a vowel is usually retained." *Furious, greedier, fanciful, loveliest* and *buried* illustrate the first part of the rule, *plenteous* being an exception; *conveyance, essayist, betrayal* and *dismayed* illustrate the last part of the rule, while *paid* and *daily* are exceptions.

Again, we have the rule: "Monosyllables and words accented on the last syllable, ending in a consonant after a single vowel, double that consonant before a suffix beginning with a vowel, unless the suffix changes the accent." This rule applies to *concurrence, regretted, conference, rebellion, gases, stoppage, quitting* and *benefited. Gases* is an exception, *conference* shows the change of accent on adding the suffix, and *benefited* is a word not accented on the last.

Potatoes and *folios* were intended to bring out the less familiar rule, "Nouns in *o* after a vowel add *s* for the plural." *Music* and *frolic*, with *derrick* as an exception, show that "Polysyllables ending in the sound of *k*, in which *c* follows *i* or *ia*, do not add *k*." The last two words, *tying* and *dying* illustrate the rule that "Words in *-ie* substitute for these letters *y* before the ending *ing*."

It was intended in this test to include words with only one authorized spelling; but it seems that some authorities allow two *l's* in *quarreling*. Accordingly, this word was left out of account in the consideration of the rule for the final consonant. *Payed* was marked incorrect, inasmuch as that word was probably not the one meant by any person tested.

The persons tested

This test was first made upon certain students in the freshman class in the University of Wisconsin. These students, because of deficient preparation, were a semester behind their class in English. The chief reason for giving them this test was the fact that over fifty per cent. of the seventy papers submitted were from students who, in February preceding the giving of the test, which occurred in November, 1911, had completed the course known as "Subfreshman English," in which special emphasis is laid on spelling, the rules in general being thoroughly taught according to Wooley's *Mechanics of Writing.** It should be said, however, that no instruction in spelling rules had been given during the semester in which the examination was held, though individual students had been referred to rules as their work required. The instructors gave this exercise as a part of the regular work of their classes, graded the words and noted the results.

The written directions given each instructor for his class were as follows:

I. Spell the following words, numbering them from 1 through to 50. (Then followed the list given above).

II. Without changing any spellings, write all rules you consciously used in spelling this list, and after each rule the number of the words on which you used it, as 1st, 17th, etc. Do not be troubled by apparent exceptions to any rules you have in mind. Practically all have their exceptions.

III. Write all rules you see exemplified by this list, but which you did not think of while spelling the words. If you can not give the rule for any case exactly, give its essence, or tell what it is about, even in a vague way. We want all you know about spelling rules.

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* Seventy-six papers were received in all, but those of four foreigners, one person who came late to the test, and another person evidently of very defective hearing, were thrown out. In the other papers there was scarcely any difficulty due to lack of understanding.

IV. If you should be unable to give any data under II or III, say whether any one has ever tried to teach you rules for spelling.

A desire to please the instructor may have induced some students to say that rules not consciously used were so employed; but all the evidence indicates that the students were not writing for the benefit of the instructors. One who fell somewhat below the average in spelling ability said: "The writer will admit that his spelling is not up to standard, but when he has any literary work to do his trusty Webster is always beside him." On the whole, the students were frank in their statements concerning their training and their attitude toward rules.

Practically the same test was given to thirty-nine seniors and thirty freshmen in the Wisconsin High School, a secondary school under the control of the University. The word *daily* was replaced by *solos,* which comes under a different rule; and *quarreling* by *exhibition,* which falls under the same rule. The first four rules involved in the test had been taught to these pupils about two months before, though in simpler forms than those given above. A list of ten to twenty words exemplifying these rules had been worked through daily in the classes, about ten successive days in the freshman class and three in the senior class. The test was given nearly six weeks after the learning of the rules had been dropped as a class exercise. The fourth clause of the instructions to the university freshmen was therefore left out in the directions to the high-school pupils, though the seniors were asked to give their opinion of the value of spelling rules to them, without regard to the supposed views of their teachers on the subject.

As each of the seven groups of words was corrected separately, it resulted that the papers fell into three classes, according as the writers (1) consciously used a rule in writing any particular group of words; (2) later recalled a rule governing a certain class of words, but did not consciously employ it; and (3) could not remember any rule that applied to the words spelled. The records of these three classes are compared for each rule separately, since each rule needs to be considered independently of all others, because one rule may be very helpful to a learner, while another may not be of service to him.

Conscious versus unconscious functioning of a rule

With reference to the first and second classes of papers just mentioned, it seems impossible to separate the conscious from the automatic use of a rule. A rule might be used consciously and very helpfully for a time, and then cease to be so employed, though it might still be of advantage in determining the spelling of certain words. It is for this reason that the records of all those having any knowledge of a rule are presented together. Some advocates of rules may go so far as to say that those unable to cite any rule in spelling might nevertheless have realized some benefit from it before it was forgotten. This surely would not hold in the case of the students who took this special test. The recency with which they had been taught rules certainly gave the latter every possible advantage.

The per cents. in the following table indicate the amount of correct spelling only so far as this is governed by rules. For example, if the *i* and *e* are correctly arranged in *ancient,* the word is considered correct in this table, even if there be elsewhere an error, making wrong the word as a whole. This method of recording is adopted necessarily because our inquiry has to do only with the observance of the rules.

TABLE I

OBSERVANCE OF THE RULES

RULE	Conscious of Rule While Writing				Unconscious of Rule While Writing				Combination of All Citing a Rule				Unable to Cite Any Rule			
	High School		University		High School		University		High School		University		High School		University	
	Students	Average %	Students	Average %	Students	Average %	Students	Average %	Students	Average %	Students	Average %	Students	Average %	Students	Average %
ie-ei	16	79	25	87	15	71	5	87	31	75	30	87	38	73	40	86
Final *e*	31	81	20	87	21	78	9	94	52	80	29	89	17	82	41	88
Final *y*	11	74	18	94	18	67	13	95	29	70	31	94	40	73	89	91
Final consonant	15	78	32	88	27	72	2	87	42	74	34	88	27	75	86	84
Final *ie*	...	...	...	...	...	...	..	...	5	80	18	95	64	61	52	69

The function of the ie-ei rule

Curiously enough, most of the university students who said they consciously used the *ie-ei* rule relied on mnemonic devices which gave a clue to only one or two of the eleven words. Of these devices the word "Alice" was the most common. It is used to indicate that when *i* and *e* occur as a diphthong after *l* and *c*, *i* always follows directly after *l* and *e* follows directly after *c*. The slight superiority of those citing a rule does not, therefore, seem to be due entirely to the rule itself. Three subjects made one or more errors by stating the wrong rule and following it; while four made one or more errors by not following the rules they gave. No high-school freshman mentioned a rule as it had been taught to him, but four gave it nearly correct. Several of them wrote something about "When the word ends in *ie* or *ei*," etc., plainly confusing it with two of the other rules. Three seniors gave the rule substantially as they learned it, but nearly all the others who cited anything gave a version of something taught in earlier years—the "Alice" rule, *et al.*

Value of rule on final e

Sixteen different rules were stated by the twenty university students who told how they solved the problem of final *e*. The most nearly complete statement of a rule was—"Drop final *e* before a suffix beginning with a consonant or to preserve the identity of a word." The rule seemed to be too complex for most of the writers. They stated it in general outline, without any qualification, or gave only some very special application of it. Several who had the case of *-ce* and *-ge* in mind were far more successful than the average. Three-fourths of the high-school students said they remembered some part of this rule. About a dozen had it very nearly exact in the simple form in which it was recently taught to them, but their grade in spelling was not above the average.

Value of rule on final y

Several university freshmen cited the rule for final *y* in acceptable form. The high-school freshmen excelled the seniors in its recall. The latter seemed unable either to use it or to recall it. It might be noted here that while the observance of this rule was easiest for the university group, and showed an advantage of three per cent. with them, it was most difficult for the high-school group, and showed with them a disadvantage of three per cent. This seems to show that something more than the use of the rule is involved. Very probably this rule, and hence the words to which it applies, had received relatively less attention at the hands of the high-school teacher and, on the contrary, relatively more attention in the carefully outlined work of the university classes.

Value of rule for final consonant

Several of the college students were able to give more or less accurately the rule for doubling the final consonant. In this case the citations were not so much incorrect as insufficient, i.e., they were so phrased as to apply to only a very few of the cases which the rule as a whole covers. There seemed little in the rule itself to cause confusion or misapplication. About fifteen of the high-school freshmen and three of the seniors quoted the rule substantially as it was taught to them, but they failed to show any better average in their spelling than those who gave insufficient or erroneous versions of the rule. The correct application of the rule, as it had been given them by their teacher a few weeks before, would have enabled these students to attain an average of about eighty-three per cent., instead of the seventy-four per cent. which they actually attained. This certainly offsets the value of the rule in the spelling of the college students.

Value of rule for final ie

The rule relating to the spelling of the last two words of the list appears to be more serviceable than the other rules. It applies to a class of words without exceptions. Thirteen of the sixteen college students who used it consciously stated it and applied it correctly. The high-school students who had learned it some time were less successful in applying it, though four of them quoted it correctly. The rule relating to *music, frolic* and *derrick* was not given by any one, so there was no chance for comparison. A few who tried to formulate a rule on plurals for *potatoes, folios* and *solos,* attained a rank about twenty per cent. below their fellows in their spelling.

Students' attitude toward rules

The attitude of the college freshmen seemed generally unfavorable to rules. Teachers were charged with having laid but little stress on them, or with having failed to insist on their application until thoroughly mastered. One writer said: "I knew most of the spelling rules, but they have become so indefinite in my memory that I am mixed up if I use them." Another said that he "attempted to learn rules for spelling but thought it added to the difficulty." Four others declared, after giving one or more rules, that they had decided that the way the word "looks" is the best guide. One of them complained of the long list of exceptions. Four who had been in the course in Subfreshman English* reported that they had lost almost all of the rules then taught them. One gave this amusing but rather significant testimony: "I was greatly helped, but because of lack of practise they have grew vague." This suggests that it may be just as difficult after children have been spelling somewhat automatically for several years to get them to spell by rule, as it is in language work to get them to base their expressions on grammatical rules. The high-school seniors gave testimony substantially the same as that given by the college students. Only ten out of thirty-nine ascribed any value to rules.

In summary, it may be said that no one rule was quoted by as many as fifty per cent. of the university students, though more than half of them had memorized all these rules, and others besides, only the winter before; and many of the students had been over all of the rules in the public school. A little less than half the high-school students had the courage to try to give the rules they had learned only six weeks previously. In the university group, those who gave some sort of rule to cover any part of the list of words, averaged four per cent. higher in general spelling efficiency than those who could not give any rule. So it is fair to assume that their better observance of the rules as shown by Table I is the result of their better spelling ability in general, and not to any conscious application of the rules as such. Not a single rule tested proved to be of real value, except the one for the last two words of the list—that relating to the final *ie*. In later chapters we shall have much to say respecting the way in which a pupil actually does learn to spell, and this may help to explain why rules do not play a very important part in the process.

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* See p. 14.

CHAPTER III

SOURCES AND CAUSES OF ERRORS

THERE have appeared in print from time to time long lists of misspelled words selected from civil service examinations or tests of public school children by boards of education or others who are inclined to think that spelling efficiency has declined since the days of our forefathers. To those engaged in teaching it is discouraging rather than helpful to learn that a recent test of two hundred thirty-seven university sophomores and freshmen resulted in the misspelling of *Macaulay* by one hundred eighty-one.* But the report of this experiment goes further, and informs us that the one hundred eighty-one students who failed to spell the name of this well-known English author exhibited only fifty-one different ways of missing the word. It appears from this fact that some forms of misspelling are repeated by different individuals, which suggests that a few particular erroneous combinations may enjoy a certain kind of popularity among those who take liberties in the matter of spelling.

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* *Bulletin of Illinois Association of Teachers of English,* Vol. III, No. 8.

Need of determining causes of errors

Now, for the better teaching of spelling it seems important that teachers should know *how* various common words are most often misspelled; yet one finds a general lack of understanding on the part of teachers relating to this matter. Some schools are doing a valuable work, however, in compiling lists of words misspelled in the upper grades, and referring them to teachers in the lower grades to be given some special attention. Where the schools are well organized, certain portions of such a list can be referred to the particular teacher who is likely to be responsible for establishing the first impressions of the words that give trouble. But teachers ought to know, in order to be of greatest service to their pupils, not simply that *separate* is a commonly misspelled word, but they should know also just where the mistake is likely to occur, and why, so that attention may be effectively directed to the source of trouble. While in many words, of which *separate* is an illustration, most teachers are aware of the point of special difficulty, there are many other words presented in the schoolroom, the difficult parts of which are not known to the teacher in advance. The writers have been impressed with this fact in the experimental work performed on the group of boys spoken of in Chapter I. The sources of error which the instructor tried to guard against in the teaching of the lessons did not, he often found upon test, constitute the major difficulties at all; he had been aiming at the wrong point. Any teacher can see how subtle a matter it is to pick out the sources of error, if he will give a list of common words to his class, and then tabulate the frequency of the various misspellings of each word. As a basis for discussion of this problem, it will be advisable to consult the tabulation of the misspellings of some common words as they occurred in the one hundred thirty-nine papers referred to in Chapter II. In the interpretation of these data, it should be understood that the writers are relying on observations of the group of boys already spoken of. Without such first-hand observation, it is impossible for an adult to be reliable in his explanations and deductions regarding a psychological experience remote in his own past.

TABLE II

Spelling	Frequency of Occurrence		
	University Freshmen	High-School Seniors	High-School Freshmen
ancient	70	36	21
anceint	....	2	2
anciant	....	....	3
anscient	....	1	1
anchint	....	....	1
antient	....	....	1
anxsion	....	....	1

Spelling	Frequency of Occurrence		
	University Freshmen	High-School Seniors	High-School Freshmen
foreign	64	33	15
foriegn	4	2	4
forgein	....	....	4
forgien	1	....	2
foregin	1	....	....
foreighn	....	....	1
foriegm	....	....	1
foregien	....	....	1
forein	1	....	....
foren	1	....	....
forhead	1	....	....
thorn	1	....	1
thorm	....	....	1
piercing	66	31	18
peircing	2	2	4
pierceing	2	2	2
peirceing	....	2	1
pearcing	....	....	2
pircing	....	1	....
percing	....	....	1
perssing	....	1	....
preicing	....	....	1
personly	....	....	1
sieve	45	21	9
seive	18	10	6
sive	6	5	6
ceive	....	....	3

Spelling	Frequency of Occurrence		
	University Freshmen	High-School Seniors	High-School Freshmen
siv	1	....	....
seeve	....	1	....
scive	....	1	....
siev	....	....	1
sceve	....	....	1
seieve	....	....	1
cib	....	....	1
shaney	....	....	1
shafe	....	....	1
(omitted)	....	1	....
nervous	67	31	17
nerveous	1	4	5
nervious	1	3	1
nervice	1	....	2
nervess	....	....	2
nervase	....	1	....
neverous	....	....	1
nerivous	....	....	1
(illegible)	....	....	1
encouragement	64	33	16
encouragment	6	6	4
encourgement	....	....	6
engarrment	....	....	1
injurment	....	....	1
encoerrgement	....	....	1
encourgment	....	....	1

Spelling	Frequency of Occurrence		
	University Freshmen	High-School Seniors	High-School Freshmen
awful	65	32	22
awfull	1	3	1
auful	....	1	2
awefull	2	....	....
auwfull	2	....	....
awfle	....	1	....
awfful	....	1	....
auffell	....	....	1
affull	....	....	1
offel	....	1	....
offul	....	....	1
offull	....	....	1
(illegible)	....	....	1
argument	59	32	22
arguement	11	6	4
aurguement	....	....	1
argement	....	....	1
argurment	....	....	1
humment	....	....	1
(omitted)	....	1	....
dismayed	69	28	13
dismade	....	2	9
dismaid	....	....	4
dismay	....	4	1
desmayed	1	2	....
desmaied	....	1	....
dismeyed	....	....	1

Spelling	Frequency of Occurrence		
	University Freshmen	High-School Seniors	High-School Freshmen
dismayence	....	....	1
dismaided	....	....	1
dissmayed	....	1	....
dimayed	....	1	....
betrayal	64	24	8
betrail	2	6	17
betrayel	3	6	2
(other purely individual errors)	1	3	3
benefited	33	18	4
benefitted	25	11	6
benifited	8	6	5
benifitted	4	2	7
benifit	....	....	2
benefitied	....	1	....
benafated	....	....	1
benifetted	....	....	1
benefitting	....	....	1
benfitting	....	....	1
benfited	....	....	1
benififted	....	....	1
binefited	....	1	....

The above eleven words, tabulated in their various forms, were chosen at random from the list of fifty given to the students; and they illustrate most, if not all, of the principles to be brought out in this chapter. A few of the words, which showed the greatest variety of odd misspellings, were excluded from the eleven presented above in order to save space.

Prevalence of chance errors

A study of this table of misspellings reveals a number of principles. In the first place, most readers will be willing to admit that in respect to practically every word there are evidences of chance errors due to slips of the pen, misunderstanding of the word, or both. Scarcely any one will maintain that the writers of such forms as *anxsion, cib, shaney, shafe, neverous, engarrment, injurment, humment, dismayence, dismay, dismaided* and *benefifted* were trying to write the precise words they were asked to spell. The misunderstanding may have been due to faulty pronunciation by the teacher, or it may be that the ear of the pupil was at fault. Again, it may have been due to the apperceptive difficulty most of us experience when we hear a name or isolated word. In such spellings as *forhead* and *thorn* (for *foreign*), and *personly* (for *piercing*) it is evident that the pupil read a wrong meaning into the sounds which he thought he heard.

Slips of the pen

Slips of the pen are accountable for some errors. *Thorm* shows the common occurrence of *m* when *n* is intended; and the reverse is as often true. *Dimayed* represents another very common mistake, the hand omitting a letter in order to abbreviate the process of writing. There is strong probability of the same thing being true for *argement, benfited* and *benfitting.* Sometimes this curtailment takes place at the end of a word, as in *siv,* although this explanation is especially pertinent to such a form as *freigh* (for *freight*), the *gh* being so common a termination that it often automatically asserts itself in wrong places. A letter from a county superintendent recently received by one of the writers contained three successive words with the last letter omitted. Most students in taking rapidly the notes for a lecture are liable to use *the* for *they, them,* etc. What we call "carelessness" accounts ordinarily for such lapses in writing a spelling lesson *in column,* unless the pupil is greatly hurried.

Preicing (for *piercing*) and *mielage* (for *mileage*) illustrate another sort of error in spelling, the inversion of the order of the letters. But the shifting about of the *g* in *foreign* can hardly be attributed to the same cause. The silent letter, by virtue of the very fact that it is silent, is liable to suffer all sorts of displacement. It is interesting to note that the same trick, inversion of literal order, is sometimes played by one's vocal organs, as common observation shows, not only with reference to oral spelling but also with reference to words and expressions, such as the famous "Peter Piper" jingle. Not only does a pupil change the order of letters occasionally, or skip a letter or syllable in order to facilitate execution, but the process is sometimes reversed, resulting in the repetition of a phrase, word or portion of a word in the writing of connected discourse. To this cause is due such a spelling as *conveyanance* (for *conveyance*).

Treatment of lapses

Several of these types of mistakes have been mentioned because they occur so frequently in every schoolroom. A teacher should regard them simply as lapses, which may not occur the second time with the same individual. Of course, if the same error does occur again, the chances are that it is not a lapse; but a wise teacher can not permit his attention to be distracted by mere lapses from the real points at issue in teaching a list of words. Teachers often fail to differentiate these "pen-slips" from errors due to lack of knowledge. Often, too, teachers mark as absolutely wrong a word which, although written incorrectly originally, was seen to be incorrect by the pupil, and voluntarily corrected before the time for the submission of the work. Many lapses are detected in this way by those who commit them. On such a theory of grading, a contractor would penalize one of his bricklayers just as heavily for tearing down a defective portion of a wall as for building the superstructure upon it without remedying the defect. It is probable that such lapses as have been described are in no way related to real errors; and they can not be wholly overcome, unless facility in expression be seriously interfered with by giving too much attention to the technique of writing.

In the teaching of spelling in our public schools, a distinction should be made between lapses and real errors. Each must be penalized, but not in equal measure. Certain forms of lapses may become individual characteristics. One subject has been observed in whose writing *think* tends always to be written *thing*. A university student recently complained that he had to fight constantly against interchanging for each other *d* and *g*, both in preparing manuscript and in typewriting. These instances are given to show the likelihood that a careful record of misspellings may enable a teacher in time to detect the characteristic lapses of certain pupils, so that the latter may be put on their guard, and asked to go over their work in order to check up on their special failings. Most teachers find by experience that the vague unparticularized command, "Look over your work," can secure only meager results at best.

Let us leave out of consideration the particular misspellings which occur but a single time in the lists of Table II, as being for the most part lapses, and see whether or not among the other misspellings, those due to lack of knowledge, the comparative popularity of certain errors may not be clearly established. In arranging the table, there was an attempt made to place the misspellings in the general order of their frequency, the most common ones standing first. One striking fact relates to the great difference in relative number of the various misspellings of a word, which must be due to a marked tendency of pupils to commit some particular error. Another suggestive fact is that the order of frequency of the misspellings of any word is almost exactly the same for all three groups of students. There would appear, then, to be in the constitution of certain words special difficulties which are a source of trouble to a majority of children learning to spell.

Is there a critical point in a word?

It is not always possible to tell just which mistakes are due to lack of knowledge and which to lapse; but taking the situation as we find it, let us see whether a study of the frequency of different errors will not enable us to determine critical points, or perhaps *the* critical point in a given word, so that if some particular letter or brief combination of letters be properly impressed, the misspelling of that word will be likely to be corrected. Seven out of twelve pupils who missed *ancient* did so because the combination *ie* was not thoroughly familiar, and with four of the seven it was merely a question of the order of the two letters. Twenty-seven missed *foreign,* four of them trying to spell something else. Of the other twenty-three, the failure of ten was due solely to the reversal of the letters *ei.* Twenty-four students missed *piercing,* two of them probably by chance. Eight of the others failed solely by reversing the letters *ei,* six by retaining final *e* and three by combining the two forms of error. Half of those missing *sieve* spelled it *seive,* and over a fourth made it *sive.* The other errors were peculiar and exceptional, save for *ceive,* which appeared three times. Again, of twenty-four errors in writing *nervous,* ten made it *nerveous,* and five others wrote *nervious,* thus showing the difficulty to be at the same place in the word in every case. Out of twenty-six mistakes in writing *encouragement,* sixteen were written *encouragment. Arguement* is the only misspelling of *argument* that is not strictly individual. These and similar cases that could be cited from the list of fifty words, show that from one-third to two-thirds of all difficulties in spelling lie at the point of a word covered by some rule relating to it.

Crucial points often not covered by rules

Underlying much of the belief in the value of the teaching of rules has been the assumption that they relate to the points of chief difficulty in the words to which they refer. Some data bearing on this matter may be gained from an examination of the spelling of a number of the fifty words already given. The retention of *e,* as in *awefull,* appeared in only two of twenty cases of misspellings of this word, but the much less commonly taught rule (*full* does not occur as a suffix), was violated by a majority of the twenty students. In *benefited,* *tt* appears in violation of the rule fifty-eight times; but *beni,* in violation of no rule, occurs thirty-five times. Thus the difficulties are somewhat evenly distributed. In *buried* the results are quite different. Twelve out of twenty-six doubled the *r,* and eight others combined it with another error. But only two violated the special rule relating to the retaining of the *y* in *bury.* Out of fifty-seven students who made errors in spelling *essayist,* thirty wrote *essayest,* while only eighteen violated the rule by omitting *y.* Eight of the eighteen can hardly be said to have broken the rule, since they did not write anything that could be recognized by a person not knowing what word was given out. Forty-two missed *exhibition,* but only one did so by violating the rule covering the doubling of the final consonant. Thirty-eight had no *h* in their spelling. In *foreign,* on the other hand, the omission of silent *g* was too unusual to create a problem. In *concurrence, ance* is a markedly more prevalent error than the failure to double the *r* as required by the rule. So if one were to say that the critical point in the spelling of those words that come under some rule is always the point covered by the rule, one would not be in accord with the facts.

A few words in the list show a great diversity of genuine misspellings, but the errors are usually localized at one or two points in the words. Of about twenty misspellings of *grievance,* there were only two that did not preserve the consonant skeleton *gr-v-nce*. In thirteen misspellings of *pitiable* nearly all the trouble centered in the doubling of the *t*, and following it with the wrong vowel. It may be concluded that for ordinary words of three or four syllables, there is a single letter or diphthong that causes most of the trouble, and that it is altogether unusual to find more than two crucial points in a common word. It is plain that a knowledge of rules simply does not inform the teacher where the stress in teaching particular words is to be laid; nor does the presence of a silent letter or the possible doubling of a consonant necessarily lay bare the source of difficulty. Every word presenting serious problems to the novice must be studied by itself, and the teacher can deal with it effectively only after examining the misspellings to see where the crucial points are. This can be done by any one who will tabulate the frequency of as many as fifty cases of misspelling of a word, though a smaller number will be suggestive.

Mispronunciation as a cause of error

The discovery of the *causes* of error in spelling is the next step to be considered. This is an easier matter than to locate crucial points. The cause of an error can ordinarily be detected from its character by teachers of experience. Few teachers need to be impressed with the importance of correct pronunciation of words to be spelled. The spelling exercise will almost daily bring to light some errors due to mispronunciation by the teacher, or by the pupils themselves. *Anchint* is very likely a phonetic spelling of a mispronunciation of *ancient.* Outside of a few words of French origin, *ch* almost never has the sound *sh.* The same cause of error in spelling is seen in *percing* and *perssing,* and probably in *nerivous.* The spelling of *encourgement* six times and *encourgment* once by the high-school freshmen shows a lack of distinct articulation which among the younger students is a common practise. Even adults who give the *a* in *courage* a distinct value, tend to slight it or wholly to elide it in the longer forms, such as *encouragement, discouragement,* and the variations of the verbs from which these two nouns are derived. *Des-* in *dismayed* is another error due to mispronunciation. *Benafated* and *benifetted* illustrate the same principle, as disclosed by the vowel after *f.* The easiest and surest method for a teacher to test the question of pronunciation is to ask a child to pronounce a misspelling just after he has written it. Oral spelling, of course, offers ready means of making such a test.

There can be no danger in insisting that all words to be spelled by a pupil should be pronounced correctly by him as the first step in the lesson study. Even then it will be found that errors such as *unaminous* for *unanimous* will appear now and again, because pupils can not or at least do not hold the pronunciation faithfully in mind as they write. Errors due to mispronunciation are not so numerous as those due to other causes which we shall discuss later. They are, however, of much greater frequency and importance in the lower grades of the elementary school than in the high school, for many of them have been acquired by the child before school age.

It is peculiarly difficult to forecast what are the probable mispronunciations that will occur in the case of certain words, since two different sets of influences produce these errors. On the one hand, we have those individual associations made by each child for himself, such as caused one child to call a screen door "a scream door," because, as she afterward stated, it made such a noise when it closed. On the other hand, there are the peculiar survivals of the nature of dialect in the speech of every child, reflecting the idiosyncrasies in the spoken language of his family and friends.

Analogies in spelling

A most fruitful cause of errors in spelling is phonetic analogy. Persons with whom the auditory factor predominates are much subject to this difficulty. Sometimes the analogy covers only a brief phonetic unit, while at other times a word is taken over entire. *Antient* shows the persistence of the common element *ti,* phonetically equivalent to *sh. Pearcing* is the result either of drawing an analogy from *ear, fear, dear,* etc., or it comes directly from the proper name *Pearce.* Words having the suffix *-less* or *-ness* may have been the cause of the spelling of *nervous* as *nervess;* and *novice* and *service* may explain *nervice.* A very special case is presented by the like sounds of certain consonants or combinations of consonants, as in the case of *anscient,* where *sci* is inferred from *conscience.* Likewise, the various uses of *c, s* and *sc* produced considerable confusion in *sieve.* The alternative of *s* or *z* is troublesome in some words not noted above, as, for example, *seizure.*

Another factor is introduced when a child takes over a word as a whole on account of phonetic analogy, as *ceaseur* (for *seizure*), *pieceable* (for *peaceable*), *berried* (for *buried*), *dismade* and *dismaid* (for *dismayed*). The pupil usually disregards the content of both the word transferred, and of the word to which he makes the transfer. This is not the case with the writing of *full* in *awful,* since the significance of *awful* is actually "full of awe"; but it is true of *off* in *offull* (for *awful*). And when *piece* enters into *peaceable, maid* or *made* into *dismayed, trail* into *betrayal,* and *fitted* into *benefited,* we have the incorporation into one word of another word altogether extraneous to the situation in which it is placed. Such mistakes tend to decrease with the development of a critical attitude toward one's language. When a student begins to diagnose his mother tongue, the idea of content comes to dominate in word composition, and he resists phonic analogies which have no regard to content. The introduction of a foreign language, especially German, into the elementary school should be helpful in giving students this attitude. Younger students can not be placed on their guard too fully against thinking they may cite this or that word as a justification for the spelling of another word in a particular manner. There is only one real authority, and that is the way the word *is* spelled. Inferences may be drawn only from such other words as have a similarity in content.

Obscure or elided vowels

Many teachers have recognized as a cause of error the obscure or elided vowel, i. e., the vowel which, though not silent, has its sound so slurred as to deprive it of individuality. We see this in such words as *separate, infinite,* and words terminating in *-able* or *-ible.* The learner's tendency is to interchange *i* and *a,* or to substitute *e* for either of them. *U* may sometimes interfere, but scarcely ever does *o.* In some spelling-books, lists of words containing such vowels are printed or written with the difficult vowel in heavy or unique type. In the schoolroom they are often written on the blackboard in chalk of a different color from the body of the word. But it is safe to assert that few teachers in the elementary school recognize that the obscure vowel is *always* a possible source of error. The writers have found by experience that they can not detect by a cursory examination all of these letters in lists of words in spelling lessons; they can be discovered only after painstaking search. One would hardly think the second vowel in *benefit* would give trouble, but the writers found it to be so in thirty-five out of eighty-four misspellings of the word. Final *e* in a number of monosyllables does not have any sound whatever in itself, but it might be considered as one type of elided vowel, because it modifies the pronunciation of the word. It is not often omitted by mistake, however, probably on account of the prominence of its position. Every obscure vowel ought to be presented with stress from the start; either by positive means, such as fixing the impression by auditory and visual stimuli, intense and repeated, or by the negative method of warning against the use of other letters which the pupil might be inclined to employ in its place. The latter method will further on be shown to have its dangers; and if it be employed at all, it must be closely watched for its effects.

Doubling letters

The mistake of doubling a letter happens much less frequently with the vowels than with the consonants, probably because the doubled vowel has a distinctive sound in the case of *oo*. The other vowels, except *e*, are not commonly doubled. But most of the consonants are frequently doubled, and the result is not apparent from the pronunciation of a word. The place where doubling is likely to occur is usually in the middle of a word where a syllable stops or begins with a certain consonant. The mistake arises in assigning the consonant to each of the two adjacent syllables, as *singging* (for *singeing*), *millage* (for *mileage*), *pittiable* (for *pitiable*), *furrious* (for *furious*) and *burried* (for *buried*). Following the same principle, one member of a double consonant may be dropped under like circumstances, as *derick* (for *derrick*), *stopage* (for *stoppage*) and *rebelion* (for *rebellion*).

Just what corrective measures, if any, are especially adapted to counteracting this difficulty, can not be stated with confidence. It is impossible to formulate rules for doubling letters that shall cover any large number of cases without numerous exceptions. For a discussion of the efficacy of such rules the reader is referred to Chapter II. Directing the attention upon the crucial points is recommended, as in the case of elided vowels. Special stress on double combinations, by means of oral spelling without regard to syllabication, might prove very helpful as a means of fixing the doubled letter, especially for those in whom auditory imagery is strong. The method might be, for example, as follows: Have pupils spell *coffee*—"*c-o-* double *f-* double *e*," or *village*—"*v-i* double *l-a-g-e*," and so on.

Types of letters

This brings us to an important principle connected with spelling that is closely related to several causes of error. Just half the letters of the alphabet are "single-space" letters. Six rise more than one space above the base line, five pass below it but only a single space above it, while *f* and *p* stretch both above and below the "single-space" letters. In printing, *f* and *p* fall into one of the three distinct classes, but the classification here has regard only to writing. Considering the last two letters as hybrids or combinations, we have the three types of letters—the "ascender," the "single-space" and the "descender." Now, if any ordinary writing be examined, two-thirds of the letters occurring will be found to be of the single-space variety. Most of the others will be "ascenders." But it is plain that either the first or the third class of letters will stand out more prominently than the second, just as a pedestrian of uncommon color, garb or language will be more marked than one who is conventional in these respects. It is likewise true that the further removed such a letter is from others of its kind in a given word, the more prominently it will stand forth.

This principle explains why, in the various misspellings of such a word as *ancient,* most students made mistakes which did not interfere seriously with the visual image of the word, i. e., they maintained the succession of single-space letters. In *foreign* the visual impression made by *g,* rather isolated from other unusual and striking letters, causes it to be found, rightly or wrongly placed, in nearly every misspelling of the word. On the other hand, *exhibition* presents an alternating series of short and tall letters, and the omission or misplacing of *h* does not seriously affect the visual image. This also accounts for the difficulty in doubling or not doubling letters, the substitution of one vowel for another when the sound is obscured, and the confusion of *c, s* and *sc,* though it does not explain the interchanging of *s* and *z*. To illustrate further, if *ss* were written old style, we should be much less likely to find *pasion* (for *passion*), or if *e* after *n* were a "descender," we should not have found *benifit* thirty-five times in our list of misspellings.

Syllabication

Dividing a word into syllables may act as a preventive of error to the extent that it secures correct pronunciation, and checks the omission of syllables in long words. Yet it may well be asked whether the short *e* in *benefited,* for example, is more likely to be remembered because *ben-* is recalled as the first syllable instead of *be-,* or whether, as in the case of one of the writers, *ben-* is recalled as constituting the first syllable because the correct pronunciation is remembered. This difficulty would not exist if *ben-* were visually presented as a distinct syllable just as often as the auditory element is repeated by speaking the word, hearing it spoken, or writing it. But *ben-* as a visual entity disappears from consciousness as soon as the pupil turns from the spelling lesson, while the *word* remains as a unit in audition, in content, and most of all, in vision.

Whether this view is sound or not, it can not be denied that syllabication is often merely arbitrary as far as pronunciation is concerned, whereas it is usually thought by adults to be fully in accord with the phonetic character of words. To adults there is no inconsistency in saying that such a combination as *betrail* consists of two syllables; while *betrayal,* of course, contains three. But a child can write them interchangeably and see no violation of phonetics, just as when a boy writes *mechanisem* (for *mechanism*). The almost universal resistance of children's minds to proper syllabication indicates that it is a matter of unusual psychological significance and that it should be regarded with due caution as an aid to correct spelling.

Directing attention to the crucial point in each word

If the propositions so far advanced have been true in the main—if each word presents a special complex of visual and auditory elements, different from all other words—there will necessarily be unique features or factors in the teaching of each word. For example, in the teaching of *ancient* one should call special attention to the *sh* sound in pronunciation and note the spelling in this case; *ie* also should be stressed. *Foreign* will not be found hard to pronounce correctly, but the *ei* should be made the stressing point, not simply in itself, but in relation to the shifting *g*. In *benefited* the second *e* must be presented with force from the start. If this be done, probably the *i* will never appear, for there are no common words in *beni-*. But citing several common ones like *beneficial, benevolence* and *benediction* might strengthen the correct impression. The *tt* in *benefitted* can not be so well dealt with on a visual or auditory basis, but the element of content may be invoked by showing the words *fit, unfit, misfit,* discussing their relation to one another, bringing out the *tt* in the appropriate form of each, and then dissociating the content, hence the spelling of *benefit* from the content and spelling of these other words. Such is the type of "word study" that must come to have a place in every schoolroom in which spelling is taught.

CHAPTER IV

THE LIFE HISTORY OF CERTAIN SPELLINGS

Words assigned in experiments

IT is desired to show in this chapter just what stages a group of boys passed through in learning a list of about seventy words chosen from a widely-used spelling text. The subjects of this experiment were the four boys mentioned in Chapter I. A daily assignment was made for five successive days. The experimenter wrote the words on the board in "families" as he called them, such as *inspire, inspiration; mechanism, mechanic, mechanical,* and so on. There were from six to twelve such groups in each day's lesson. The original intention was to present a series of twenty or twenty-five lessons by five different methods, following one another in a constant order, as a basis for determining the comparative merits of the different methods of presentation; but the text-book list was so far beyond the ability of the class, and, it is believed, so far beyond that of the ordinary child for whom it is designed, that it was decided at the end of the fifth lesson to concentrate upon these seventy-five words, and see what experiences the pupils must have in order to master them.

Methods of presentation and study

All preparation of spelling lessons was done during the class hour. The first two lessons the experimenter pronounced and spelled orally, the class spelling orally and pronouncing after him. For the first lesson, sentences containing the words were used in the study, and for the second, definitions were given, but no words were used in sentences. The third lesson was pronounced and spelled orally by the experimenter, and the pupils were told to study it as they pleased. All of them did as common observation shows most pupils do when left to their own resources to prepare their spelling lessons—they simply looked at the words on the board, and presumably "said them over to themselves." The content of the words was not referred to during this lesson. For the fourth and fifth lessons the pupils looked at the words and their definitions and heard them pronounced, but they were not asked to pronounce them themselves. They then wrote the words on the board, using those in the fourth lesson in sentences so far as time permitted. The words of the fifth lesson were not written in sentences. To sum up, the third lesson was a go-as-you-please one of the old type, while the other four were half of the contextual and half of the column type. Two of them were recited orally and two were written.

Methods of recitation

Each lesson was written in a test the day after it was studied. The first lesson was written in sentences constructed by the class, but the other lessons were done in columns. This interval of a day between studying a lesson and reciting on it gave any well-defined errors a chance to ripen in consciousness for twenty-four hours before they were written; though in the *study* of the four lessons supervised, all errors were instantly corrected. All the errors made in the written test on each lesson remained undisturbed for another twenty-four hours, or until the next day. In teaching the lesson, points which the experimenter thought might prove difficult were stressed in various ways. A vertical line was drawn through words of the same "family" at the point where their likeness ceased, as *inspir|e, inspir|ation*; *mechan|ism, mechan|ic*. Double or silent letters or obscure vowels were underlined, as *intelligence, courageous, infinite;* and the difference in pronunciation and spelling of the first two syllables of such words as *mechan|ical* and *machin|ist* was emphasized.

Methods of correction

The next day after the test on each lesson, the boys were called on to spell orally the words they had missed. A tally was kept to show whether, when a word had been misspelled originally, the same incorrect form was given now, or a different one, or whether the correct spelling was given now or approved when presented. Each word in its correct form was placed on the board by the experimenter before it was left for good.

When the five lessons had thus been corrected, and it was determined to continue work at length on the difficult words instead of presenting new ones, the entire list was again written in columns without any further study. A very thorough review was then begun. The test papers were returned to the boys, and every word that had been missed by any one was written correctly on the board by all. Each word was now for the first time divided into syllables, all the boys showing some skill in this. Correct pronunciation of each word was required. The word was then written again in a sentence suggested by the class. Every boy was required to underline that part of any word in which his mistake had occurred. The whole list was next written in test for the *third* time. Only contextual spelling was attempted. The meaning of the words now seemed to be so clear to the class that in the next review-study there was no contextual work. With their last papers in their hands, the boys took each word missed by them individually, and wrote it on the board twice. If a word was not written correctly on the board and without much hesitation or apparent change of mind, the boy who was writing it continued his efforts until he could execute the whole word without a slip.

After this the *fourth* and final test was made by writing the words again in sentences.

Table III shows the general progress of the class from start to finish as gaged by the number of words missed on each test.

TABLE III

Pupil	1st test	2nd test	3rd test	4th test
A	57	37	33	11
B	34	(absent)		17
C	18*	30	24	10
D	34	36	28	11

Capacity for improvement

Barring B, who missed the second and third tests and all the training for them, the rank of the other three continued the same up to the last test. C had at the beginning a feeling of superiority, which declined as his fellows gained on him. Both C and D showed an actual loss from the first to the second test, but elsewhere there was a steady advancement. A showed the greatest capacity for improvement from intensive study of difficult words, and C showed the least. This is the inverse order of their abilities to spell in various tests which they took later on.

The improvement occurred in two ways,—by the gaining of new words and by the retention of those already spelled correctly. The latter shows great variation from pupil to pupil. Table IV indicates the number of words missed on any test, which had been spelled correctly on the preceding test.

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* For only four out of the five lessons.

TABLE IV

Pupil	2nd test	3rd test	4th test	Total
A	2	6	0	8
B	(absent)		6	(as against first test)
C	10	9	3	22
D	9	8	1	18

Learning and retaining

The power of gaining new words and holding the old ones seemed to be correlated closely in this intensive training series. This raises the question, often debated, as to whether the slowest learner is the best retainer. In another series of lessons, discussed from a different point of view in Chapter VI, very intensive training in spelling was given these same four subjects, with the result that there was practically perfect immediate recall of all words. But the course of lessons was extended until one hundred sixty words were presented. Without any recall one day of those missed the day before, and with a considerably longer time elapsing between the first (daily) test and the second (final) test, A showed his power plainly on the immediate daily recall, and was superior to all the others; but on the final test, when the entire one hundred sixty words were written without review, he turned out to be the poorest retainer in the group. So it appears that A, the best retainer according to the test of the present chapter (as indicated by Table IV) is the poorest retainer in the experiment of Chapter VI. Evidently the different results in these tests are due to the different conditions of the two experiments. One set of conditions was just suited to A's type of mind, while the other was not. He illustrates a kind of pupil found in nearly every class, the kind of pupil whose diligence brings satisfactory, sometimes excellent, results in the daily work, but who "never does well on examinations." Students of this sort may correct any minor misstatement of the teacher in the daily geography or history lesson, but show a woeful ignorance of the same and other much more vital points at the time of the monthly quiz. No answer as to the relation of learning and retaining appears possible, as long as we aim at a general formula that shall cover all conditions and cases. Generalizations of this character, as far as they relate to spelling, must be accompanied by a statement of the intensiveness of the study, the number of times of recall, and the time elapsing between tests.

We may now look more closely into the question of the persistence of certain mistakes in spelling

Persistence of errors

made by this group of boys. Most teachers doubtless have noted how a misspelling will crop out again and again in the work of a student, even though he may have been reminded repeatedly of his mistake. The same thing appears in the work of this group. In Table V, all errors have been tabulated for each individual so that a glance across the page will suggest how a pupil worked out a certain word, or at least attempted to do so, through the whole four tests. The notes of the experimenter made daily as to special difficulties served to verify the general conclusions drawn below. All blanks indicate correct spelling. Points of difficulty are italicized as far as possible.

TABLE V

PUPIL A

Correct form	1st test	2nd test	3rd test	4th test
infinite	infinit	infin*a*te	infinit	
infinitesimal	infinite*sme*l	infi*ntesa*l	infinit*isa*l	infinit*isa*l
ignominy	ig*i*nominy	ignom*e*ny	ignom*e*ny	
ignominious	ig*i*n*i*minious*s*		ignom*e*nious	
crucify	cru*s*ify	cru*s*ify		
crucifix	cru*s*ifix	crucifix*s*		
crucifixion	cru*s*ifixion	crucifix*t*ion	crucifix*t*ion	
courageous	courageous*s*	cor*ei*ous	c*u*rag*i*ous	
sacrifice	sa*ci*fi*s*			
sacrificial	sa*ci*fi*s*al	sac*s*ifi*se*l	*c*acrifi*s*al	sacrifi*s*al
mechanism	mec*ke*nis*e*m	mecha*mi*s*o*m	mech*imi*s*o*m	mechanis*o*m
mechanic	mec*k*anic	mechan*ek*		
mechanical	mec*k*anical	mechan*e*cal		
machinist	m*e*ch*a*nist	m*e*chani*ous*	m*e*ch*a*n*e*st	machin*e*st
intelligence	intell*egant*ence	intell*e*g*a*nce		
intelligible	intell*e*g*a*ble	intell*e*g*a*ble	intellig*ea*ble	intelligi*a*ble
demonstrate	demonstra*it*			
demonstration	demonstra*it*ion			
demonstrable	demons*ta*ble			
conception	con*sep*ion			
conceivable	con*se*able			
barrier	barr*ear*			
ostentatious	ost*a*nt*ai*ous	ost*a*ntatious	ost*a*nt*ai*ous	

ostensible	ostens*a*ble	ost*anca*ble	ost*anc*ible	
malign	m*u*lig*a*n	m*e*lig*a*n	m*e*lig*ine*	m*e*lign
malignant	m*u*lig*a*nt	m*e*lig*a*nt	m*e*lignant	m*e*lignant*y*
malignancy	m*u*lig*a*ncy	m*e*lig*a*ncy	m*e*lignanc*e*	m*e*lignancy
malignity	m*u*lig*en*t	m*e*lig*an*	m*e*lign*an*ty	m*e*lignity
enmity	en*mty*		e*mn*ity	
passion	pa*s*ion			
passionate	pa*s*ionate			
wealthily	w*lea*th*ful*	wealth*i*y	wealthil*l*y	
avoidance	avoid*e*nce		avoid*e*nce	
influential	influ*nec*al	infl*unc*ial	influ*n*ent*u*al	influent*es*al
influentially	influ*nec*ally	infl*unc*ially	influ*n*ent*u*ally	
envious	*i*nvious		env*e*ious	
mediocre	me*doker*	mede*o*c*er*	medioc*er*	
mediocrity	medio . . .	mede*o*c*to*ty	medioc*t*ity	
rarity	rar*t*y	rar*e*ty		
rarefy	rar*i*fy			
rarefaction	rar*i*faction			
rareness	rar*n*ess			
susceptible	sus*pec*t*a*ble	s*uc*ept*a*ble	su*se*ptible	suscept*a*ble
susceptibility	sus*pec*t*a*bility	s*uc*ept*a*bility	sus*pe*ti*a*bility	
improvable	improv*e*able			
nativity	nativ*e*t	nativit		
genius	geni*o*us	geni*o*us		
accessory	ac*s*es*e*ry	access*e*ry	ac*s*essory	
accomplice	a*c*ompli*sh*			
malefactor		mal*i*fact*e*r	mal*i*f*i*ctor	
felonious	*fle*	felo*u*nious	fel*l*onious	
perpetrator	perpe*a*trator			

Correct form	1st test	2nd test	3rd test	4th test
appliance	a*p*li*e*nce		appl*e*nce	
instigator	ins*tg*ator	ins*u*gator	inst*u*gator	
instigation	ins*tg*ation	ins*u*gation	inst*u*gation	
incitement	inci*tm*ent			
incriminate		incrim*e*ate		
criminally	crimi*nl*ly	crim*ia*lly		

PUPIL B

infinite	inf*e*nit			
infinitesimal	inf*ente*si*ble*			infinite*sm*al
ignominy	ign*e*min*e*			
ignominious	ig*e*minious			
martyr	mart*o*r			
martyrdom	mart*e*rdom			
sacrificial				sacrific*a*l
mechanism	mec*k*anism			
mechanic	mec*k*anic			
mechanical	mec*a*nical			
machinist	m*e*chin*e*st			m*e*chin*e*st
intelligence				inte*l*ig*a*nce
intelligible	intellig*a*ble			intellig*a*ble
conception	con*s*eption			
conceivable	conce*ave*able			
barrier	ba*r*ier			barri*o*r
ostensible	ostens*a*ble			
malignancy	malig*a*ncy			
malignity	malig*an*ty			malign*an*ty

enmity	*ame*ty			enm*an*ity
passionate				pas*so*nate
wealthily	wealth*y*			
avoidance				a*d*voidance
influential	*e*nfluential			
mediocre	me*a*diocre			
mediocrity	me*a*docr*a*ty			
rarefy	rar*i*fy			rar*i*fy
rarefaction	rar*i*faction			rar*i*faction
inborn	inborn*e*			inbo*u*rn
susceptible	sus*s*ept*a*ble			
susceptibility	sus*s*ept*a*bility			
improvable	improv*e*able			
talented	tal*l*ented			
genius	gen*e*us			
malefactor				mal*a*factor
accomplice				a*c*ompl*a*ce
felonious	feloni*e*s			felon*iu*s
incitement	in*s*itement			in*s*itement
criminally	crim*a*ni*l*y			
		PUPIL C		
infinite		infin*a*te		
infinitesimal	infinites*a*mal	infin*a*tes*a*mal	infin*a*tesimal	
ignominious	ignomin*e*ous			ignomin*e*ous
crucifixion	crucifix*t*ion	crucifix*t*ion		
martyr		mart*re*		
martyrdom		mart*re*dom		
sacrificial		sacrifi*t*ial	sacrifi*t*ial	

Correct form	1st test	2nd test	3rd test	4th test
mechanism		me*c*ani*zo*m		
mechanic	A	me*c*anic		
mechanical		me*c*anical		
machinist	B	machin*e*st	me*c*h*a*nist	m*e*chinist
intelligence			intell*e*gence	
intelligible	S	intelligi*a*l	intell*e*gi*a*ble	
demonstration			demons*t*ation	
demonstrable	E		demons*t*able	
demonstrator			demons*t*ator	
conceivable	N	conc*ev*able	conc*evi*ble	
barrier		barri*o*r		
ostentatious	T	*au*stentatious	*au*stentatious	
ostensible		*au*sten*c*ible	*au*stensible	osten*c*ible
malign	mali*ne*	mali*ne*	mali*ne*	
malignant	malign*e*nt		malign*e*nt	malign*e*nt
malignancy	malign*e*ncy	malign*e*ncy	malign*e*ncy	
malignity	malign*a*ty	malign*a*ty	malign*e*ty	malign*a*ty
enmity	enm*a*ty			
wealthily	wealth*a*ly	wealth*e*ly	wealth*y*	
avoidance	avoid*e*nce		avoid*e*nce	avoi*n*dance
influential	influen*c*ial	influen*c*ial	influen*c*ial	
influentially	influen*c*ial*y*	influen*c*ially	influen*c*ially	
envious				env*e*ous
mediocre		med*e*ocre		
mediocrity		med*e*ocr*e*ty	mediocr*e*ty	
rarity	rar*e*ty	rar*e*ty		
rarefy	rar*i*fy			
rarefaction	rar*i*faction			

susceptible	*ce*ceptible	su*c*ceptible		
susceptibility	*ce*ceptibility	su*c*ceptibility		
genius		geni*o*us		
abet		ab*b*et		
abetter		ab*b*e*t*er		
malefactor			mal*i*factor	
felonious		felo*u*n*e*ous	felon*e*ous	felon*e*ous
appliance				appli*e*nce
incitement	incit*m*ent		incit*m*ent	incit*m*ent

PUPIL D

infinite	infin*a*te	infin*a*te	infin*a*te	
infinitesimal	infin*a*tesimal	infin*a*tesimal		
ignominious	ignomi*e*ous	ignomin*e*ous		
crucify	cruc*e*fy			
crucifix	cruc*e*fix			
crucifixion	cruc*e*fixion		crucifix*t*ion	
martyr		m*a*tyr		
martyrdom	mart*er*dom	m*a*tyrdom		
courageous		coura*g*ous	courag*i*ous	
sacrificial		sacrifi*t*ial	sacrific*t*ial	
mechanism	mechanis*i*m	mech*e*nism		
mechanic			mechanic*e*	
machinist	m*e*ch*e*nist	m*e*ch*e*nist	m*e*ch*e*nist	mach*e*nist
intelligible	intellig*a*ble	intellig*a*ble	intelligi*a*ble	intellig*a*ble
demonstrator		demonstrat*e*r		
conception			con*s*eption	
conceivable		conc*ie*v*e*able		
barrier	b*e*arrier			b*e*rrier

Correct form	1st test	2nd test	3rd test	4th test
ostentatious	ostenta*c*ious		ostenta*c*ious	
ostensible	osten*c*ible	osten*cia*ble	osten*cia*ble	ostence*iva*ble
malign	mali*ne*	mali*ne*	mali*ne*	ma*lg*n*e*
malignity	malign*an*ty	malign*an*ty	malign*an*ty	malign*an*ty
passion	pa*t*ion	pa*t*ion		
passionate	pa*t*ionate	pa*t*ionate		
wealthily	wealth*y*ly	we*at*hily	wealth*e*ly	
avoidance	avo*u*d*i*ance	avo*u*dance		
influentially	influentia*l*y	influentia*l*y		
mediocre		med*e*ocre		
mediocrity	med*e*ocrity	med*e*ocrity	mediocr*e*ty	
rarefy	rar*i*fy	rar*i*fy	rar*i*fy	rar*i*fy
rarefaction	rar*i*faction	rar*i*faction	rar*i*faction	rar*i*faction
rareness		ra*rn*ess	rar*i*ness	
susceptible	sus*s*ept*ia*ble	sus*s*eptible	sus*s*eptible	
susceptibility	su*se*ptibil*a*ty	sus*s*eptibility	sus*s*eptibility	
talented	ta*l*lented	ta*l*lented	ta*l*lented	
genius	geni*o*us	ge*nu*s		
abetter			abe*t*er	a*b*better
accessory	access*a*ry	access*a*ry	access*a*ry	access*a*ry
malefactor			mal*li*factor	
offence		o*f*ence		
felonious	fel*l*on*e*ous	fel*l*on*e*ous	fel*l*on*e*ous	fel*l*on*e*ous
perpetration			perpe*r*tration	
perpetrator			perpe*r*trator	
appliance		a*plai*nce		
instigator	inst*a*gator	inst*a*gator	inst*a*gator	
instigation	inst*a*gation	inst*a*gation	inst*a*gation	
incitement	inciti*i*ment	incit*m*ent	incit*i*ment	

The tenacity with which special misspellings persist is evident from the following data relative to those words which were missed on both the first and the last tests.

TABLE VI

Pupil	Total number misspelled	Identical mistakes on 1st and 4th tests	Different mistakes on 1st and 4th tests
A	11	2	9
B	11	5	6
C	5	4	1
D	10	6	4
Total..	37	17	20

Table VII, giving the results of the two intermediate tests while B was absent, shows further how misspellings tend to persist.

TABLE VII

A—15 words twice,	3 in the same way,	12 differently
A—15 words three times,	none in the same way,	15 differently
A—11 words four times,	none in the same way,	11 differently
C—10 words twice,	5 in the same way,	5 differently
C—12 words three times,	5 in the same way,	7 differently
C— 1 word four times,	none in the same way,	1 differently
D—17 words twice,	5 in the same way,	12 differently
D— 9 words three times,	4 in the same way,	5 differently
D— 9 words four times,	5 in the same way,	4 differently

Again, we may take only those words which were missed on the first test, spelled correctly on a subsequent test, and then lost again before the conclusion of the experiment. We may classify them according as the later misspelling was or was not a repetition of the first error. A's list of errors shows five such words, in only one of which the original error recurred; C's list shows five such words, in four of which the original error recurs; D's list shows a recurrence in one of three possible cases. This evidence seems to leave no doubt respecting the persistence of errors in spite of focalization upon them, and reaction by the pupil in various ways calculated to eliminate them. A misspelling shows a tendency to recur even when the correct spelling has been gained, and it is *usually the initial error in spelling a word that persists.*

An apparent exception to the rule of persistence

The reader has probably noted that A's records do not agree in any large degree with those of the other boys. The original errors were not reproduced by A as frequently as were certain subsequent ones. The reason for this is interesting. The experimenter's diary shows that A was often unable to pronounce on one day what he had tried to spell the day before, that he gave very curious and erroneous pronunciations of the real word, showing that he was guided very largely by the phonetic elements of what he had written, from which it is to be inferred that he spelled pretty accurately what he heard, but that he did not hear correctly. When one repeats an error, one does so because of one's habit of response to a stimulus already experienced. But when a pupil has very little idea of the sound of a word the first time he meets it, but keeps on gradually working out the phonic elements of it until he gets the true pronunciation of it in mind, he is not subjected, as his learning proceeds, to the same stimulus when the word is pronounced for spelling. And so, if the stimulus has been changed, the response naturally is different. Now, a detailed study of A's lists shows just this general characteristic—a gradual growth toward the correct spelling. Some of the words which he never did get right were worked out of an unintelligible form into one where it is plain to see what he was driving at. Several words, such as *sacrificial, influential* and *susceptible,* were missed four successive times, but never in the same way. Rarely was there a word missed four times that was not nearer right at the finish than at the start.

Why errors persist

In the face of these facts it seems reasonable to conclude that if the original error in spelling can be avoided, much of the problem of acquiring correct spelling will be solved. But how may this be accomplished? Manifestly its accomplishment depends on an appreciation of the reasons for original errors, and for the persistence of errors. Obviously two factors are of chief importance. First, there is the actual source of error, as discussed in the preceding chapter. Second, there is the "set" given by the graphic execution of an incorrect form. Teachers of drawing, instrumental music and penmanship attach importance to the persistence of motor habits; instructors in physical training and successful coaches of athletics give much preliminary attention to "form." In the demand that pupils rewrite a specified number of times each word missed in spelling, some teachers have shown their belief in the permanence of impressions of hand-motor responses. But at best this latter type of work is a sort of locking the door after the theft has been committed. A few graphic or oral repetitions of the lesson in preparation are worth many repetitions after the harm is done.

It is undoubtedly a mistake to permit a child to write a spelling lesson he has not prepared. In schools where there is no special time given for the preparation of the spelling lesson, or where in high schools the attainment of a certain grade in spelling for a term excuses a pupil from further pursuit of the branch, or in cases where the pupil is careless and receives no penalty for missing, except the trifling one of writing the wrong words correctly below the lesson—under all such conditions there are many who write without studying. Thus mistakes are made which a very little study would have prevented; and if they are not corrected until the next day, as often happens, there is incorporated in the nervous system a response it will take many times the energy to uproot that it would have taken to get the thing right in the first place. No matter how long we may work on words once misspelled, we can hardly ever be sure that the fault will not return. So instead of refusing to let children write their spelling lessons because they have not the regulation blank or have forgotten pen or ink, we ought to apply a really fundamental test—"Have you faithfully studied this lesson?"—keeping in mind that while an unprepared pupil may possibly attend other recitations to his profit, he may participate in the written spelling class only to his own harm.

The life history of certain words

The life history of a few individual words studied throughout these tests may be indicative of the factors entering into the spelling process. Two words, *machinist* and *malignity,* were never spelled correctly by any one on any test, though perhaps few adults would have designated them as the hardest of the list. *Machinist* showed persistence of errors with B and D, and identity of error twice between A and C. The skeleton *m-ch-n-st* was always retained except for A's peculiar *mechanious,* which appeared once. Though A and D made some progress, B and C did not. The three vowels, *a, e* and *i,* filled in the spaces in all sorts of ways. The obscurity of the vowels in the word prevented the proper arrangement of *a* and *i.* Doubtless *e* crept in because the word was taught as a member of the "family" of words starting with *mech-;* and as might have been expected, it appeared more frequently in the first syllable than elsewhere.

The efforts to spell *malignity* showed but little more success than in the case of *machinist.* Great confusion arose because of *malignancy,* leading to the impression that the desired word was *malignanty.* There was a strong persistence of the original error with C and D; but A worked out everything correctly except the first vowel, ending finally with *melignity.* It is interesting to note that he had to pass through the *-nanty* stage on the way. Here again it seems that the "family" grouping in the presentation of the words was more of a hindrance than a help. It is a well established principle in psychology that two associations interfere less with each other and are less likely to become confused, if one is thoroughly mastered first than if both are in the formative stage at the same time. If the acquisition of a word is accelerated by associating it with other members of its "family" when all are new, why should it not be after certain members of that "family" have become familiar?

A few other illustrations will show more plainly the nature of the struggle which we are here considering. Take the work of A on *intelligible.* His first rendering—*intellegable*—might have been expected, considering the obscured vowels; and it was so written a second time. Under instruction directed upon the points of difficulty, one of the vowels was fixed correctly, and A wrote on the third trial *intelligeable.* The troublesome *e* had been displaced, but not eliminated. The stress was now all shifted to the one point still needing change, and the boy next wrote *intelligiable.* The *i* had been forced in, the *e* forced out. Further instruction would probably have eliminated the superfluous *a.* A greatly improved *accessory* on his second writing, and would have had it correct on his third trial, but one of his former difficulties returned, viz., the substitution of an *s* for a *c.* The last time he got rid of it again and held the rest securely. While C was casting out one error in *ostensible* a former one (substitution of *c* for *s*) returned.

Such are the vicissitudes in the conquest of a hard word. The opposing forces sway back and forth much as two battle lines fighting for a strategic point. Even if the teacher places equal stress on all parts of the word, the pupil will feel a particular stress at the point of error. Adults feel some such stress for years after being checked up on a pronunciation, spelling, or date in history. This stress may be just sufficient to break the old association, or to establish the new one. In the first case, the incorrect letter goes out, and its place is left vacant, or more likely it is taken by something that to the pupil seems probable, as in several of the spellings of *machinist.* This was C's state of mind when, in answer to a question regarding his mistake, he said, "I know *where* it is, but I don't know *what* it ought to be." In the second case, the proper letters are brought in, but the erroneous ones may not be eliminated, hence the former may be displaced considerably, and float around as it were, like *p* in A's spelling of *susceptibility.* His first three spellings of the second syllable were *-pect-, -cept-* and *-pet-,* but on the last trial he had it correctly, *-cept-,* with all other mistakes corrected at the same time.

Errors eliminated one at a time

Two or three errors in a word are not likely to be worked out at one and the same time, for the pupil probably does not feel sufficient stress in two parts of a word of ordinary length. If a public speaker should emphasize every second or third word, proper emphasis would be destroyed for his hearers. After a period of practise, the word may be written with improvement in some respect, and when the attack begins again the stress is no longer experienced at the old point. Yet when the word is written again and another error corrected, the former error may recur. It is always situated at the youngest and least stable part of the word-association, and may be expected to assert itself now and then. Such a recurrence should not be regarded as occasion for discouragement and censure; the error will be dispelled more easily this time than before, and it will be less likely to return.

There may be designated then four principal stages in the mastery of a word, instead of the two

Four stages in word mastery

usually distinguished,—right and wrong. First, there is the stage in which a word may be classed as well established incorrectly. This is by far the most serious stage. The pupil invariably uses the same misspelling; and the first sign of improvement dates from the moment when the misspellings begin to vary. The word is now in the second stage, and may be said to be partially established incorrectly. In the face of further treatment a casual right spelling may appear, but it may quickly disappear. The third stage has now been reached, and the word is imperfectly mastered correctly. Additional practise will lead to the fourth stage—well mastered correctly. Lapses then rarely occur. All children do not pass through all these stages with reference to every word they can spell. Most people never exhibit the worst stage (well established incorrectly) except with reference to a few words. Prolonged practise between tests may even cause a certain stage to be skipped as far as can be seen. The advantage of such an analysis is that it indicates what teachers may expect from exceptionally poor spellers, or from any who have made a bad start with certain words. This sort of clinical practise can be greatly diminished through improved technique of presentation, and more accurate grading of words. Then the weeds of original error will not be permitted to grow so rank.

When is a word mastered?

There is need before this subject is left to take some account of a phrase which teachers use very freely, viz., the "mastery of a word" (in the sense of spelling, of course). It would be better if we interpreted this expression in a relative rather than in an absolute sense. Most adults have had the experience of forgetting or becoming uncertain of the spelling of a word, which for years has been perfectly under command. This happens with simple and common, as well as with complex and uncommon words. Such evidence, together with the tests described in this chapter and in the next, and the experience of every teacher, indicates that we do not know just when a child has fully mastered a difficult word, so that it will always abide with him. But happily we can generally tell when he is making progress in its mastery.

In this connection it may be noted that mastery of a word may be more complete and lasting in one "modality" than in another. To illustrate: one of the writers has the experience that under conditions of fatigue he sometimes loses confidence in the writing of certain words; but if he spells them *aloud,* so that vocal and auditory familiarity are brought in, he never fails to recall immediately the correct spelling. Ordinarily there is no hesitation in deciding whether or not words are spelled correctly by the way they *look,* or *feel* in writing; but mastery in these modes is less permanent than in the vocal and auditory modes. But with some persons it appears to be just the other way; they rely in times of doubt or stress upon visual or graphic rather than upon auditory or vocal familiarity. Still other persons who have been questioned in regard to the matter by one of the writers declare that one mode is not more secure or reliable than another; uncertainty as to the writing of a word is not relieved by spelling it vocally, or *vice versa*. Probably people differ in this respect according as they are predominantly of the visual or auditory or motor-graphic or motor-vocal type, or as they have through early training and use come to rely mainly upon one mode or another in spelling.

CHAPTER V

COLUMN VERSUS CONTEXTUAL SPELLING

THE second experiment carried on with the four boys already mentioned was undertaken in the hope of gaining some data bearing on the problem of the outcome of spelling in sentences as compared with spelling isolated words. Some easy portions of *Robinson Crusoe* were dictated, and the boys were asked to copy them. Two days after this dictation work, the group was given a column test based on the dictated material. Reversing the process, a test was given on isolated words selected from an account of the Chicago fire. This was followed a couple of days afterward by the dictation of an account of the fire.

Material and subjects

The words seemed simple enough, so that pupils of grammar-school grade should be familiar with them, yet there were a number in both selections that appeared strange to all members of the class. They indicated this by asking, for instance—"Is the word 'despĕr-

Difficulties of the plan

ate'?"—or by requesting the experimenter to "say it slow." The latter tried his best to give the conventional pronunciation, speaking all words plainly and with moderate speed. In the column tests, it was necessary to insure that the pupils understood the words by having them defined, giving their opposites, or illustrating their use with a brief sentence. The purpose kept in mind in this work was to determine (1) whether words might be spelled correctly in column and missed when used in sentences, or *vice versa;* and (2) whether the boys experienced greater difficulty with one kind of spelling than with another. Much interest has been taken in these problems during the last few years, and many persons have freely expressed their opinions regarding them; but so far as the writers are aware, no tests have heretofore been made to get precise data bearing upon the problems.

About sixty words were taken for the column test each time, while the dictated selections included about three hundred twenty-five words each. The spellings given in Table VIII include only those words of the column test which were missed by some one either in column or dictation. All other words are omitted to save space. Blanks denote correct spellings. For the guidance of the reader, the true word is sometimes inserted in parentheses to aid in identifying the misspelling.

TABLE VIII

EXTRACT FROM ROBINSON CRUSOE

PUPIL A		PUPIL B		PUPIL C		PUPIL D	
DICTATION	COLUMN	DICTATION	COLUMN	DICTATION	COLUMN	DICTATION	COLUMN
will-to-do (well-to-do)							
						wisched (wished)	
						happey	
becuase							
		ferther		furthur			furthur
						sadisfied	sadisfy
incomnation	incomnation (inclination)						
		incolination (inclination)					
	lead	lead	lead	lead		lead	lead (led)
stronghly	strongthly (strongly)						
intreaties	entreties	entreties					
fatile	fatile	fatil	fatil				fatel
	diriconly					directlly	
miseray		misory	missory			miseray	missurary
			whitch			witch (which)	
			befal				
				moring (morning)			
	chambter (chamber)						
						were (where)	
						grout (gout)	
		seariously	searously			cir......	serriesly
staied	staied (stayed)						
prospet	prosppect						propect
	riasing	rasing (raising)					

fortions	forchion						
				happeness	happyness	happyness	
	wealthly	weathy (wealthy)					weathy
despate			desporate				
serch	secrsh			surch	surch		
						midile	
expernce		experence	experance				
enveid	enved						
beggers	beggers	beggers	beggers			beggers	
concdision	condision						
ment		ment				ment	ment (meant)
proverity	proverty (poverty)						
disswade	disuade	diswade	deswade	disuade	disuade	disswade	diswad
seesit	secdst	sease	sease (cease)			seace	seace
						(foolish)	foulish
deply		deaply	deaply				
affectd				afected	afected		
resouved	resoved				resoulved		
revolsions	resolousion					reselutions	
		eny (any)					
				runing (running)			
oppretonite	oppertunity	oppertunity		oppertunity	oppertunity	oppertunity	oppertunity
persented							persented
remand	remaned			remaind		remaind (remained)	
				ingage	egage		emgage
refusse	refuss (refuse)						
buiness	....? (business)						
lern	lean (learn)						
reguard	reguard	reguard	reguard	reguard			
		desplay					

DESCRIPTION OF CHICAGO FIRE

PUPIL A		PUPIL B		PUPIL C		PUPIL D	
DICTATION	COLUMN	DICTATION	COLUMN	DICTATION	COLUMN	DICTATION	COLUMN
						utillity	
affectionally		affectually	affectually		effectualy		affectually
	consomehd (consumed)						
				topled	topled	topled	topled
				auful	aufull		
	parish		parished (perished)				
runse	runse						ruines
reclessely	reclessly						
contence	contence	contence	contence	contence	contence	contence	contence
						completly	conpletly
						distroyed	distroyed
scarsely						scarcly	sec......
reallys				relize			relize
	reish (risk)						
egerness	egermous		eagerniss				egerness
						forhead	
fulled (felled)							
growned (ground)							
strange	strange			stronge (strong)			
minest	mines	minace	minas	minas (minus)			
	replease (replace)						
hunderds	hunderd					hundereds	
	fling (flying)						lying
appearence	appearence				apperance	appearence	appearence
pisturesk	picturest	picturesk	picturesk	pickturesk	pickturesk	picturest	pictureck

flatering	flatering	flatering	flatering				
brigde (bridge)				(omitted)			
				flams (flames)		(omitted)	
extencive	expensive			exstensive		extencive	extencive
holesale	holesale	holesail	holesail				holesale
rappedly	rapedly						
emp....	emploies	emploes	emploies				emploies
buisily	buily		buisly				
porsion	porsion						
safty (safety)				safty		safty	safty
intence	intence	intence	intence (intense)		intence	intence	intence
abanden	abaned						
emence	emense	emence	emence	emense	imense	immence	immence
millian	milloin						
insurnece	insunences			insurence			insurince
	invelopt			inveloped	inveloped	inveloped	enfeloped
		gunpowde (gunpowder)					
perviously	preveously					priveously	
basemunt				bacement			
terrifict	terrift	terific					
exporsion				explotion	explotion		
figmens	figmuns (fragments)						
scatered	scaterd	scatered	scatered				
woned (wounded)							
mame	maming	maming	mame	maming		maming	mame(maim)

The errors given above have been tabulated in Table IX. The columns are headed in Roman numerals, Column I including those words which a subject misspelled in the same manner on both column and dictation tests. Column II includes words spelled differently in the two tests, but missed in both. Column III shows words spelled rightly in the dictation test, but wrongly in the column test, while Column IV presents just the opposite record, i. e., the number wrong in dictation but right in column. So Column III shows cases of apparent superiority of the dictation method, while Column IV shows cases of apparent superiority of the column method. In the last two columns have been noted the number of words which, right in one test, were wrong in the other, the mistake consisting of the omission of a single letter. The presumption is that nearly all of those in Columns V and VI show a mere lapse, not genuine misspelling. Column V gives those right in dictation but wrong in column, Column VI gives those wrong in dictation but right in column.

Each figure in the first column exceeds the corresponding one in the second, except for pupil A, who reverses this order for both selections. Slightly more than half of the one hundred three words missed in both column and dictation were repeated errors; and if A's record be ignored, over two-thirds were repetitions.

In only one case is a figure in Column III larger

TABLE IX

Pupil and Selection........	I	II	III	IV	V	VI
A.—Robinson Crusoe......	4	17	5	9	.....	3
Chicago Fire..........	11	16	6	10	1	1
B.—Robinson Crusoe......	5	4	3	8	1	4
Chicago Fire..........	10	2	3	3	.....	2
C.—Robinson Crusoe......	4	2	1	5	.....	3
Chicago Fire..........	5	2	3	11	2	3
D.—Robinson Crusoe......	5	3	7	11	2	2
Chicago Fire..........	9	4	8	5	4	1
Totals..............	53	50	36	62	10	19
Subtracting Columns V and VI from III and IV respectively.........			10	19		
			26	43		

Two methods of measuring loss by transfer

than the corresponding figure in Column IV. The first impression made in reviewing these results is that the tendency to miss words in column which were right in dictation is to the tendency to do the reverse as 36 to 62. Thus column spelling appears to have an advantage as to accuracy. But the words in Columns V and VI should first be subtracted from the totals of Columns III and IV respectively before we may say that we have any real measure of the tendency of actual errors to be committed. The standard of spelling on the whole seems to have been influenced somewhat by the change from contextual to isolated spelling. This is most truly represented by the difference between twenty-six and forty-three, or seventeen words. This difference of seventeen words is what we may call the *actual loss in efficiency*, which, when compared with the total number of test words, sixty for each selection, or four hundred eighty for all the group, is three and fifty-four hundredths per cent. Or we may measure the same thing by another criterion. If the loss is seventeen words, there has been an increase of about ten per cent. in the *frequency of errors,* since the total number of words missed by all the class was one hundred seventy-two.

The conventional conclusion

The data presented thus far would be held by many as illustrative of the principle that a word spelled in column may be more or less useless in actual writing, and that therefore the formal spelling of isolated words does not insure their correct spelling when the child tries to use them in expressing his thoughts. Those taking this view would insist that the difference in the two situations, one of them formal, the other dynamic, is so wide that transfer can not take place.

Genuine dynamic spelling

It may with equal validity be urged that the context dictated to a child *may* be just as formal as the words taken from it and spelled in column, and that the situation becomes dynamic only when he writes to express *himself*. Special effort was made in the experiment just described to choose material that would be appreciated by the group, but A showed by what he said that the writing of the dictation was for him a "grind," and the reactions of the others indicated that they regarded it in the same light. For this reason another test was planned.

After a period of seven weeks during which the group had not met with the experimenter, two of them, C and D, were secured for a series of exercises. To throw them off their guard, it was explained that the old matter of spelling would be laid aside, and attention would be given to facility of expression. Subjects for composition were assigned and outlined somewhat in detail. Both boys expressed themselves as better able to write on the topics presented than on anything they could suggest. Then they were allowed a certain amount of time, and told to write as easily and rapidly as possible. When the papers were received, lists of words misspelled were selected from them, and others correctly spelled were added to such lists. These were spelled in column, with the explicit statement that while some of them had been missed in the compositions, others had not. Table X shows misspellings taken from the themes of C and D on six different subjects (totaling nine hundred one and fifteen hundred ninety-two running words respectively), and the subsequent column tests based on the themes. All words passing from right on one test to wrong on the other by the omission of a single letter or the substitution of *n* for *m*, are italicized, to indicate mere lapse rather than genuine error as the probable cause of the trouble.

TABLE X

PUPIL C

Composition.		*Column.*
launchs	(launches)	
fishs	(fishes)	
minows	(minnows)	
inchs	(inches)	
pricaple	(principle)	
companys	(companies)	
sledes	(sleds)	
bubles	(bubbles)	
twards	(towards)	
succesful	(successful)	succesful
hocky	(hockey)	hocky
frezes	(freezes)	frezes
thich	(thick)	thich
allready	(already)	
birth	(berth)	
bigest	(biggest)	bigest
	(steamers)	steammers
	(pickerel)	pickeral
	(minutes)	minites

PUPIL D

Composition.		*Column.*
tipy	(tippy)	
peir	(pier)	
minnoe	(minnow)	minoe
too	(to)	

Composition.		*Column.*
tobogan	(toboggan)	tobogan
bottum	(bottom)	
freazes	(freezes)	
fruquently	(frequently)	
amunition	(ammunition)	amunition
truble	(trouble)	
throwen	(thrown)	
squarly	(squarely)	squarly
deceve	(deceive)	
afread	(afraid)	afread
excitting	(exciting)	excitting
stoped	(stopped)	
veiw	(view)	
pickeral	(pickerel)	
acrouse	(across)	acrouse
swiming	(swimming)	
universitty	(university)	
slott	(slot)	
minuetes	(minutes)	
interurbeen	(interurban)	intererban
tellephoned	(telephoned)	telaphoned
domb	(dome)	
	(smooth)	*smoth*
	(courses)	coarces
	(commonly)	*connonly*
	(steered)	steared
	(angleworm)	*angleworn*
	(either)	earther
	(railing)	railling
	(squirt)	*squrt*
	(firecrackers)	*firecrakers*
	(following)	fowlling

Summarizing the data of Table X we have Table

XI. The Roman numerals at the heads of the columns have the same significance as they did in Table IX.

TABLE XI

Pupil	I	II	III	IV	V	VI
C	5	......	3	11	......	6
D	6	3	10	17	5	5
Totals	11	3	13	28	5	11
Subtracting Columns V and VI from III and IV respectively			5	11		
			8	17		

C shows a difference of two words against the transfer of column to contextual spelling in a vocabulary of two hundred sixty-three words and a total of nine hundred one running words of composition; D shows a similar difference of seven words in a vocabulary of three hundred ninety-three occurring in a total of fifteen hundred ninety-two running words of composition. The very small loss in transfer by C on this test is due to his great care in composition, and the fact that he is always much more careful than D in his spelling. The decrease in *frequency of errors* in column over contextual writing, as derived from Table XI, is twenty-four per cent., counting no word twice for the same individual, a method of figuring which gave slightly under ten per cent. in the earlier experiment with the four subjects (see Table IX). The *loss in efficiency,* nine words, as compared with the total number of test words—fifty-five—is sixteen per cent. as against three and fifty-four hundredths per cent. in the former experiment. The smaller figures for the first experiment are doubtless the result of the formal character of material dictated by the teacher. The writers would insist that the figures for the later experiment reflect more nearly the actual difference between the formal situation in column spelling and the dynamic situation in ordinary written expression.

Dispersion of attention

The cause of this loss in transfer is the next thing that must engage our attention. If the two activities—isolated as contrasted with contextual spelling—be analyzed, certain differences appear. In the case of the former, the attention is concentrated on a few words, while in the latter it is distributed over a much larger number. Hence we should expect the mistakes to be increased in contextual writing. Suppose a boy can repeat perfectly the addition and multiplication tables. No one doubts that if he is required to multiply, for example, thirteen by twenty-four he will be more likely to give a correct answer than if he tries to add thirteen twenty-fours together. The processes in the last problem may not from one point of view be more difficult than those of the first, but the attention is distributed over a larger area, or rather is acting for a longer time; hence the possibilities of its wandering are increased. So in the problem of spelling before us—the attention is not only called to a larger number of words; it is directed to the maintenance of a proper order of the words. They are dictated, by another or mentally by the subject, in groups, and the entire remainder of each group must be carried in consciousness while any word of such group is being written. Then there is the matter of punctuation and capitalization to be cared for. Further, the context is likely to present a line of thought to the pupil, and this may distract his attention. The greater rapidity of writing in ordinary dictated exercises also prevents the review of each word immediately after it is written, though such a practise is possible and customary in column writing.

Relative automatism in spelling

But if a child is to spell correctly in his contextual writing, and at the same time execute successfully all these other matters, it is necessary that many of the processes should become relatively automatic. Otherwise he will never acquire sufficient facility in these operations to meet properly the demands of later life. Let us waive all academic discussion of the question of complete automatism in spelling, for its existence is disproved by the constant occurrence of lapses in the writing of all sorts of people. The matter of prime concern to teachers is the method by which the novice may be made to pass from his habit of giving attention to the elements of words to the point where the formal processes in writing no longer occupy a focal position in consciousness.

Automatic execution of the literal elements

Since the learner can apprehend visually a larger unit than he can execute mechanically, the sentence method, though applicable in teaching reading, would be utterly unsuited to a child in his writing. He begins by executing only the very shortest and simplest words, or even more frequently the isolated letters. But modern educational theory maintains that in teaching writing we should begin with the largest unit that can be executed effectively, so that an analysis of letters into their component parts should follow rather than precede the writing of the letter as a whole. Thus it comes about that the mere thought of a letter will call forth its complete execution much sooner than could possibly be the case if the elements of the letter were first mastered in isolation and then combined.

Oral spelling first

While the pupil is gaining this facility prerequisite to written spelling, he has supposedly been acquiring a fairly ready command of the literal elements of many short words by means of oral spelling. This knowledge should come through practise on the words as wholes, with only minor emphasis on syllabic elements of words of more than one syllable.

Some teachers insist on keeping the written spelling up with the oral spelling from the start, but the possibility of such procedure is somewhat doubtful, and its economy is still more so.

Automatic control of larger units

When the new problem arises of combining oral knowledge and graphic knowledge into successful written spelling, there will be for a time considerable hesitation and a profusion of errors. Teachers now need to be both painstaking and patient. Work of a contextual character, however, must soon begin, or the child will not come upon the necessity of thinking in larger units than single words. In fact, some persons grow up unable to compose and write at the same time with any degree of effectiveness, and a major reason for such an unhappy condition is probably the fact that they were not put to the preparation of free spontaneous composition at a sufficiently early age. Nevertheless, throughout the period when the pupil spells mainly in written composition new words should first be introduced separately in order to secure some degree of familiarity with them. Even adults who have become highly proficient in written expression must usually consider a new word carefully before they can run it off easily in their writing. The same principle must be economical as well as psychological for a child. At the same time, it should be said that only by building up in the child practically automatic series of the greatest possible length can we release consciousness for the performance of functions that never can become automatic.

Universality of the principle

Before closing this sketch of the development of habit in spelling, we should perhaps observe that the principles mentioned apply in many fields of work. As the eye of the musician becomes trained, it takes in a constantly increasing number of notes at a single "pulse" of attention. The typist progresses from a mastery of literal, through syllabic and verbal, to phrase unities. But the evidence gained from the learning of telegraphy is the most concrete and convincing of all. The curve of improvement of students of this art and their personal testimony as regards both sending and receiving, show that the succession of clicks which indicate a letter is at first their problem. Later, they begin to think of the word transmitted. Finally they send and interpret in phrases, and cease to attend to separate clicks. Moreover, between each of these stages there is almost invariably a more or less extended period of no apparent improvement.

Lack of transfer unavoidable

To resume—in the matter of the difference in efficiency between contextual and isolated spelling, it is apparent that a pupil will generally spell more accurately in column, even though his entire training has been on contextual spelling. Spelling of long and difficult words especially demands so much conscious attention that in the third stage of mastery they will be executed incorrectly more often in contextual than in column spelling; while the number of lapses in words in the fourth stage of mastery will always be greater in the former than in the latter mode of spelling.

Conclusion

Since spelling is not usually recognized as a standard high-school subject, and since many defective spellers are annually promoted into our high schools, it has become customary to give all freshmen a spelling test (in column, of course) at the earliest practicable date. Those who are not able to make a certain grade on this test are assigned to the "spelling hospital," as some have termed it, where they languish until they prove able to meet certain requirements. The most common prerequisite for discharge from the "hospital" is the attainment of a certain grade in the spelling lessons for the term. Colleges and universities very often honor similar customs by observing them. Promotions from year to year in the elementary school depend on the "averages" shown by the "spelling blank" and possibly the passing of the "final," which consists of fifty to a hundred words. A better method would be to base decisions in these matters on the showing a student makes in the written papers he submits in all his work. It will be granted certainly that the proof of spelling efficiency is found in correct writing of words in their usual contextual relation. Words should not be left until this can be done; it is the clenching of the whole process.

CHAPTER VI

METHODS OF PRESENTATION

Variance of opinions

VARIOUS studies have recently been made by American, French and German psychologists of the relation between presentation and memorization.* All sorts of materials have been used. Most of the tests have been made on only a few subjects, and the conclusions have been conflicting to some extent. This might have been predicted for several reasons. Learning to spell involves association between sounds and letters in all the phonetic combinations; second, it involves pure memorizing in the case of non-phonetic combinations, such as those containing silent letters or elided vowels; third, it involves relatively permanent retention, which is a very different thing from immediate recall in all learning processes, as was seen in a discussion of this matter in Chapter IV. The different experimenters have used materials which varied in these respects. If the foreign pronunciation is used, learning to spell foreign words evidently violates the rules of phonics already familiar to the pupil; but if he be permitted to formulate his own rules of phonics for an exercise, the non-phonetic element disappears, thus introducing a wholly artificial situation as far as English spelling is concerned. Nonsense syllables are all phonetic, and nouns and numbers are learned without the operation of the phonic element, the associations consisting of quite vivid imagery entirely aside from the visual form or the sound of the words memorized. Then, too, many of the experimenters measured only immediate recall. While all of these activities are more or less similar to spelling, none of them, therefore, is spelling.

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* The work in this field has been reviewed by Henmon, *The Relation Between Mode of Presentation and Retention, Psychological Review,* XIX, 79-96. See also Burnham, *The Hygiene and Psychology of Spelling, Pedagogical Seminary,* XIII, 474.

Plan of the work

The study of this problem, as stated in Chapter IV, was the first one designed to be taken up with the group of four pupils mentioned above. But since the first experiment developed in another direction, it now became necessary to plan a new start. The third experiment with the boys is representative of the type of work that must be done over and over again in order to answer the question of retention and recall as related to mode of presentation in spelling. A series of sixteen lessons was given by four different methods, each method being employed four times. The four types of presentation occurred in an invariable order, so that no particular type came always on the same day of the week. Absence of one pupil or another resulted in extending the sixteen lessons over twenty-four school-days. The lesson studied each day was written at the close of that day's exercise, and mistakes were corrected before adjournment. The ordinary period for studying and writing a lesson was between twenty-five and thirty minutes. The words were selected just as they came in a certain modern speller. On the eleventh and twelfth days after the last lesson was presented, the whole list was spelled in column.

Four types of presentation

The ten words for each day were always written on the board in syllables, and with the accent marked; a brief definition was put after each; the experimenter pronounced the list, and had each boy pronounce it after him. So far all lessons were uniform in presentation, but thereafter they began to diverge. On one day the boys wrote at the board, while the next day they memorized the words at their seats. This method gave an opportunity to test graphic versus oral methods of study. Then for half of the lessons studied both graphically and orally, the words were written or spoken in sentences only, and so written on the test at the close of the hour. During the rest of the time isolated words were studied, and they were written in column as the test for the day. So the four types of study might be termed graphic-contextual, graphic-column, oral-contextual and oral-column. The class was not so well pleased with the contextual as with the column lessons. Often they would ask—"We don't have to write them in sentences to-day, do we?" The contextual work seemed to conflict with their idea of studying spelling, and there is no doubt it ran in opposition to their school "spelling habit." Consequently a boy would sometimes be observed practising on the test word contained in a given sentence, instead of writing the sentences as given him. The boys' dislike for this sort of work made the experimenter feel that the contextual method did not get a fair trial. This shows, for one thing, how wide is the gap in the mind of the typical boy between *learning* and *using* spelling.

In Table XII is shown the number of errors on both the daily tests and the final test.

TABLE XII

DAILY TESTS

	Lesson type Graphic		Lesson type Oral		
	Contextual	Column	Contextual	Column	Total
Pupil A	3	..	..	..	3
Pupil B	6	..	5	1	12
Pupil C	1	..	2	2	5
Pupil D	4	..	1	..	5
Total	14	0	8	3	25
FINAL TEST					
Pupil A	24	31	25	19	99
Pupil B	9	8	12	12	41
Pupil C	6	11	6	10	33
Pupil D	9	12	11	10	42
Total	48	62	54	51	215

Effectiveness of the training

The astonishing increase of errors on the final test may be thought to demonstrate that all the teaching had been ineffective. It may be said that the group if given the final test without preliminary training would scarcely have missed a greater proportion of the one hundred sixty words. But there are at least two reasons for believing that the training had a beneficial effect. In the first place, a large number of words shown by the experimenter's diary to have given trouble in the daily study were spelled correctly on the daily tests, and many of them were still spelled correctly on the final test. The influence of the immediate correction of errors also was evident, since of the twenty-five words missed on the daily tests only fifteen were missed by the same persons on the final test, and of these fifteen only one was misspelled the same way both times.

Comparison of methods

Comparing now the results of daily and final tests, we find that the efficiency of the different types of presentation in the daily tests is almost exactly the reverse of that in the final test. The graphic-contextual type changes from fourth to first place, and the graphic-oral from first to fourth place. In the daily tests the contextual appears inferior to the column method in the ratio of twenty-two to three errors. But this large number of errors in the graphic-contextual and oral-contextual should hardly be regarded as the inevitable accompaniment of contextual spelling, because no such striking relation was shown in the experiments described in the previous chapter, and because the class recognized clearly in the context the words on which they had been drilled, and doubtless wrote them with all the care usually taken with words in isolation. Their carelessness in the study of the contextual lesson must have been the cause of the errors. However, on the final test the contextual presentation was slightly superior.

The reason for the "slump" on the final test is not far to seek. It seems plain that intensive study of ten fairly difficult words, terminating in practically perfect immediate recall, is no criterion of real learning for spelling purposes. The pupil holds the words for the moment almost as in a memory span, and is tested on his receptivity rather than his retentivity. Yet a large part of all spelling work in the schools is apparently of this snap-shot order. Thus the boy A is an excellent speller *in the spelling class,* but not elsewhere. All the experiments show it, and his teacher confirms it.* The other boys show the same tendency, but not so markedly. Two weeks seem a sufficiently long period for pupils to lose a spelling lesson as fully as they are likely to lose it in a much longer time. Such a view is upheld by the division of the lessons shown in Table XIII, in which it is shown that the final test occurred from forty-five to forty-nine days after the original presentation of lessons one to four inclusive, and of the forty words comprising those four lessons, A missed twenty-seven on the final test, B missed ten, etc.; and so on with all the lessons:

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*One of the writers often thinks of the German girl in a district school who exceeded him in "headmarks" in the course of the term. But on examination day his turn came. The artificial daily superiority of his competitor had vanished, and he counted two or three "headmarks" in a single recitation while she shed bitter tears.

TABLE XIII

LESSONS	Days between lesson and final test	ERRORS				
		A	B	C	D	Total
1– 4 inclusive........	45 – 49	27	10	7	6	50
5– 8 inclusive........	28 – 35	31	13	7	14	65
9–12 inclusive........	21 – 28	18	12	13	11	54
13–16 inclusive........	12 – 19	23	6	6	11	46
1– 8 inclusive........	28 – 49	58	23	14	20	115
9–16 inclusive........	12 – 28	41	18	19	22	100

It is evident that the method of presentation is not the determining factor, but that it is subordinate to the vital element of time. This problem is doubtless to be solved by the proper use of the review.

Processes in graphic and oral spelling

The oral presentation showed temporary results in its favor, and retained on the final count also the slender advantage of one hundred five to one hundred ten. But an analysis of results indicates that the superiority of the oral over the graphic is an individual matter rather than a general one. For A the oral is far better; for B the graphic clearly excels; for C and D there seems to be no choice. This does not consider the visual element; for provided the study is from script, the visual factor is the same in both cases. The contrast is between two types of motor activity, the hand-motor and the articulatory, though the auditory element is necessarily involved in oral spelling. Some children, however, spell almost constantly with their lips while writing, even when, for purposes of experiment, they are forbidden to do so. B does this a great deal. That there may be so small a difference between the actual processes in oral and written spelling has not been generally recognized. All investigations of absolutely pure types of presentation have interest only for the psychologist; for the teacher they have little significance, since apparently no child will ever use a pure type in study unless blindfolded, bound or gagged.

Advantages of each method

The point that has been urged in favor of the oral method is the fact that an error is detected as soon as made, a point which our discussion thus far has more than once emphasized. This advantage can not be gained in written spelling except when there is adequate and careful supervision of study. We have already said, however, that written spelling is the final test of spelling efficiency, and it is certain that there is not full transfer from oral to written ability to spell. It may further be said to the disadvantage of oral spelling that it confines the pupil practically to the column as against the contextual method.

Showing a pupil his error

It should not be forgotten that in neither the graphic nor the oral methods of teaching spelling is it certain that a child will on his own initiative become conscious of his errors and remove them. The boys in these experiments proved this repeatedly. When one boy misspelled a word orally and another spelled it correctly after him, the first often could not state what his error was or even where it was. When one on being asked to respell a word missed at first spelled it correctly, he could not tell what was the trouble with his first spelling. When a word was written incorrectly, by accident perhaps, and the writer of it and others who had written it correctly were called upon to locate the error, they were exceedingly slow in finding it, or they failed altogether. This was probably due to the fact that they examined the word as a whole, just as adults do in reading.

The only sure way for a pupil to correct an error is for him to do the thing himself, under guidance when necessary. Too much of our attempted correction of spelling errors has been based on the assumption that one pupil, or perhaps the teacher, can correct the errors of another pupil. One can correct only one's own errors, not those of another. In written spelling, teachers ought to require that each pupil should correct his own error by rewriting the word correctly *from the first.* Errors in oral spelling must be treated in the same way. Pupils, too, should always show *where* their errors lie; but it is not insisted that they should reproduce the incorrect forms. By the exercise of care in certain directions, it should be possible to utilize oral spelling occasionally all the way up through the grades. It may release erroneous associations without delay, break the monotony of the written lesson, and become a device for the arousing of some healthy rivalry of a kind that does not always impress one as he views the class writing its lesson.

CHAPTER VII

SPELLING EFFICIENCY AND COMPOSITION

IT has been more or less generally believed that spelling ability bears a direct relation to the quality and the quantity of one's writing. To ascertain the relation between spelling and composition, a concluding experiment was undertaken with C and D. Facility in composition was held out as the aim of the work, in order to insure freedom on the part of the boys, and to eliminate the effect which the personality of the experimenter might have on the subjects' consciousness of spelling.

Plan of the work

For eight days the boys were met a half-hour each morning, and six compositions were prepared, the topics being "Boating on Lake Mendota," "Fishing Around Madison," "Coasting in Our Town," "Other Winter Sports" (principally skating, snowballing and hockey), "How I Spent the Fourth" (of July), and "Our Trip to Colorado." These boys had grown up in the hilly city of Madison, which is surrounded by lakes; their own home is on the shore of Lake Mendota; and their experiences had been much the same. The composition on the "Fourth" was written July tenth, so all details were still fresh in their minds. The trip to Colorado had been taken by both boys together the preceding summer. Each boy said more than once that his subject was larger than he could exhaust in the given time. To reduce the delay in getting started in writing, and to increase spontaneity, there was a brief discussion of each topic in advance; and this resulted in a short outline being placed on the board. To illustrate: in the first composition the writers were urged to put themselves in the place of a boy living in a flat prairie country at a distance from any body of water, except the creek or community "swimming hole," and to describe all those things very familiar to them, but new and interesting to the imaginary correspondent. They were directed also to describe the different kinds of boats on Mendota, the structure and motive power, and the advantages and disadvantages of each for special purposes.

The data gathered

The following tables show certain facts with regard to the six compositions. In the first two columns of Table XIV are given the total number of words in each composition. In the second two appear the additions to the vocabulary previously employed by each writer in this series of compositions. Columns V and VI were secured by dividing Columns III and IV by Columns I and II respectively, and multiply-ing the result by one hundred. Thus they represent the addition per hundred running words of composition to the vocabulary previously used in this series. The top figure in Columns III-VI inclusive is high, of course, because no words whatever are left out of consideration. In the other figures the common words already used are eliminated, and the effect is steadily intensified.

TABLE XIV

AMOUNT OF COMPOSITION VERSUS BREADTH OF VOCABULARY

Composition	Running words		Addition to vocabulary previously employed		Addition per 100 running words to vocab. previously employed	
	C	D	C	D	C	D
First.....	141	199	66	77	47	39
Second...	127	132	43	42	34	32
Third.....	137	143	28	38	20	27
Fourth*...	181	370	52	92	29	25
Fifth......	116	327	37	67	32	20
Sixth*....	199	421	37	77	19	18
Total...	901	1592	263	393	29	25

In Table XV an attempt has been made to compare accuracy in writing with the amount written. In the first column are listed for the entire series the number of mechanical errors, such as omission of words and the use of the wrong word, as *a* for *as* or *an, the* for *them,* and other lapses. In Column II the same data are given, but with reference to the length of the compositions. In Column III the total number of genuine misspellings in the compositions is given, followed in Column IV by the relation of misspellings to breadth of vocabulary used. But there may have been a number of lapses included here still, especially when a word did not occur elsewhere in the entire series of compositions to give the writer an opportunity to set himself right. Such is probably the case; otherwise the figures of Columns V and VI would not be so much less than those of Columns III and IV respectively. The table can not be derived, of course, without employing the totals of the first four columns in Table XIV.

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* Fifty minutes were given to compositions four and six. In tallying the vocabulary, all forms of a verb were regarded as one word; also both numbers of a noun. All compound words of doubtful unity were reckoned as two words; likewise all adjectives and the adverbs to which they give rise. All proper names were discarded.

TABLE XV

AMOUNT OF COMPOSITION AND BREADTH OF VOCABULARY IN RELATION TO LAPSES AND MISSPELLINGS

Pupil	Lapses		Different words misspelled in compositions		Different words misspelled in both the compositions and subsequent column test	
	Total	Per 100 running words of comp.	Total	Per 100 words of vocabulary	Total	Per 100 words of vocabulary
C	18	2.	19	7.22*	5	1.90
D	49	3.08	28	7.12	10	2.54

* C's slight inferiority here is due to the fact that many of his occasional misspellings were probably lapses. Note his marked superiority the rest of the way through the table.

Organization of ideas

The first fact to attract the investigator's attention in the course of the tests was the delay of C each day in starting to write. Of course, D showed some hesitancy, too, a characteristic even of older students when they are called on to write upon any new theme. There is always a preliminary pause for the organization of ideas. But even with previous discussion of the general subjects treated, and exhortation "just to tell it right off," this delay in C's case amounted to from five to eight minutes each day. For this reason, the last two topics were chosen with a view to offering a change from description to narration in writing. But the advantage of the change was not evident; the disparity between the two boys seemed to be widened. The investigator was confident that when the "Trip to Colorado" was carried over to the second day, C, being right *in medias res,* would get readily to work; but the usual pause was observed. This, the first of several factors, will account for from ten to fifteen per cent. of D's broader vocabulary.

The spelling conscience

Again, C, as related in Chapter VIII, was troubled by his spelling conscience. In the entire course of the experiment, D never once asked how to spell a word. He simply wrote it as he thought it ought to be, or, as he once put it, "without doing any thinking at all." This, by the way, has been his attitude throughout. He writes down a word the first way it comes into his mind, and does not often make a change. C, on the other hand, deliberates and worries over many words, and he can often see two or more ways in which a word may be spelled after he has written it. While C spends time in serious reflection, D goes swiftly along expressing his thoughts without much regard to spelling.

Attention to technique

A third factor which interfered with C's writing was his attention to good form and exactness of statement. He would object, for instance, to saying two feet if three would seem to be nearer the truth. But though D did not bother about exactness, still his statements appeared to be just as exact as C's, possibly because he had a better command of number, or more vivid imagery. The best proof that D did not stop to consider these matters was his failure to ask questions of the investigator, which C often did. C in oral expression showed the same tendency to consider carefully before he spoke. Whenever he made an error in his composition or formed a letter wrongly, he had to erase; but D would write the correct form over the incorrect with little regard for appearances. At the close of the experiment, each boy was asked to write in his exercise book, "This is my best handwriting." This effort, contrasted with the legibility of their general writing, made it plain that C executed up to his standard more closely than did D. D's compositions would be illegible in high degree, if one should try to make out isolated words, while C's were perfectly and easily legible.

Rapidity of writing

Another factor closely connected with the last one mentioned is writing *tempo*. Copies of a simple extract from Stanley's *Travels in Africa* were given the boys, and they were directed to copy it for twenty-five minutes as fast as the requirements of legibility would warrant. The quality of writing submitted by the boys on this occasion was much the same as that appearing in their compositions; but the words on the average were considerably longer. C copied two hundred eleven words and D two hundred ninety-one words in the twenty-five minutes. It does not seem probable that in any composition period, C ever wrote over half as many words as he could have copied; but D did somewhat better. Probably neither would have felt in his composition writing the limitation of his speed in handwriting, except for the lack of automatism in spelling.

The results summarized

In actual spelling efficiency, as noted in this test and numerous others, C is plainly superior to D, whether the method be oral or written, isolated or contextual. D's errors are from twenty-five to one hundred per cent. more frequent. D wrote seventy-five per cent. more than C in a given period of time, and used a vocabulary about fifty per cent. richer. If we take the first nine hundred running words of D's compositions, we find a vocabulary of just four words less than the total for C, though the latter has the advantage of one more subject in such a reckoning. D is far superior in both facility and variety of expression. There also appears to be greater initiative, individuality and life in his work, greater sincerity in his treatment of a theme, more of concrete statement, and more interest felt by the writer in what he writes. In respect to form alone is he inferior to C.

It therefore does not appear, so far as C and D are concerned, that actual spelling efficiency is a dominant factor in producing facile and effective writing, or that it introduces variety by enriching the vocabulary. Time lost in organizing ideas, consciousness of spelling difficulties and pitfalls, and unnecessary stickling for form and exactness, are far more important forces in determining effective written expression, or the reverse.

CHAPTER VIII

SOME SPECIAL FACTORS IN SPELLING

Learning to read in relation to learning to spell

IT is proposed to bring together in this chapter a number of facts gathered in the entire course of the experiments and not mentioned in the preceding chapters. Incidental to the collection of the spelling papers and other information which formed the basis of Chapter II, the university and the high-school students were asked to describe the method by which they had learned to read. Instructors were told how to explain the question. The answers were as follows:

TABLE XVI

Method of learning to read	No. of cases H. S.	No. of cases Univ.	Average on spelling test H. S.	Average on spelling test Univ.
Alphabetic	32	25	68	85
Word or sentence....	6	10	65	83
Phonic	15	9	59	81
Combination of methods	4	11	83	89
Answers indefinite or lacking	12	15	56	86

The frequency with which the alphabet is taught at home at an early age, and the combination of methods in school may be responsible for the confusion and uncertainty in the answers of some of the students. Many older people can sympathize with the one who wrote: "I do not remember how I learned to read. It seems as if I have always known how."

To the adult who will take time for introspection, it will be apparent that he does not grasp a new word as a whole, but proceeds analytically from the start. He sees it not as a complex unit but as a compound of essential elements. These he unites to form the word; but the syllable may be an intervening unity with some. But is this the experience of one who is well advanced in reading before he learns his letters? Will not one so taught always tend to acquire new words as wholes, which may do very well for reading but not for spelling? The troubles encountered by one who takes an habitually phonetic attitude toward words, most of them so unphonetic as they are in English, are surely very great. Whatever be the best method of teaching reading, we must assume that spelling is going to be hampered by any method which does not train a child at first to see the various letters in a word and to execute them in their proper order regardless of their sounds. The students examined in this investigation who worked from the phonic or the word-sentence over to the alphabetic method in reading at an early stage made the best showing of all in their spelling. Their rapid progress in their reading had evidently promoted the acquisition of an effective vocabulary, their sense of phonics had been developed, and they had learned to resolve words into letters.

Fear of making errors

The extent to which fear of making errors affects one in spelling is interesting and important. In the group of four boys already referred to, C was much the best speller of the group in the beginning, and he possessed a high degree of self-confidence. But his own mistakes, and the numerous and grotesque ones of his fellows observed by him at every exercise, gradually undermined his assurance, and seemed to interfere with his efficiency. At the last, he was only slightly superior to B and D, in contrast with his marked superiority at the start. In his compositions, he came to ask aid in spelling easier and easier words. One of the writers has felt the same sort of disturbing influence as a result, apparently, of the continued examination and comparison of misspellings in the course of the present work. Both C and the experimenter came out of the series of tests injured rather than benefited in their spelling, as far as freedom and self-confidence are concerned. A, B and D did not seem to anticipate trouble as C finally came to. They appeared not to have developed a fear of a misstep that might happen at any time, as C did.

A special precaution should be referred to here. Work on the correction of mistakes should be a

Seeing and hearing mistakes

matter of individual instruction whenever possible. It is serious enough for one to have to look over his own errors, without having to see those of others. B was peculiarly susceptible to mistakes made in his hearing. In his study of a lesson, he might not have any trouble with a given word, but in the test a little later he might produce the same misspelling as that made by another in the study period. Of this trait he seemed wholly unconscious. But in contrast with C, he appeared able to recognize this as a personal weakness, when he was reminded of it, and to labor consciously and efficiently for its eradication.

Can one reason out a spelling?

B and C showed that they both often attempted to "reason out" their spelling. They tried to decide one word on the basis of others, saying—"It seems as if it would be spelled like this word or this one." B once asked how the order of *i* and *e* in a certain word could be remembered. The investigator explained that it was just the reverse of a similar word, and an exception to the rule. D suggested that one ought "just remember it." As a result of this attitude, B and C drew many analogies from other words. B wrote, for example, *prestidge* (suggesting *bridge*), *dishartened* (using *hart*), *inborne* (using *borne*), and *holesail* (showing double confusion of homonyms). The other boys did the same thing, but to a less extent.

Auditory and visual types

Auditory similarities between words do not appeal to some persons at all, though such similarities are prominent with others. B and C would often in a joking way make clever rhymes of the words of the lesson, and others. Any spelling device based on the meaning of words did not appeal to B, because he spelled in terms of sound. To illustrate, he spelled *frustrate* without the first *r*. He was shown the difference in the pronunciation of what he had written and what he should have written. The mistake seemed to amuse him greatly, and after class he ran about writing on the board "fuss straight." Few would have thought of such a combination. When some of the class had trouble with the first two syllables of *malefactor,* it was suggested, in harmony with the meaning of the word, that most malefactors were of the *male* sex. This device, B pointed out, might lead to *mailfactor*. Hence he missed *malefactor* on the final test. To remedy *derth,* it was suggested that he think of the word made by leaving off *d, earth.* This stuck by him, because it was based on sound. In respect to auditory spelling, A works in contrast to B and C. A never relies on mere sound in spelling, unless the word seems wholly strange and he has nothing but the sound to guide him. Three times each, C and D spelled *malign* as *maline.* Although A could not spell the word correctly, he never once omitted the *g*. Unlike B, he never spelled with his lips when he wrote.

No pure types

We must not from this description of differences infer that there are spellers who rely wholly on one sort of imagery. Dominance of certain types must be recognized, but that is as far as one may go. People frequently talk of "*eye*-spellers" and "*ear*-spellers." But there was no pure type in the group studied in these experiments. When A spelled *meaver* for *neither* and was asked what he had written, he pronounced *meaver* as any good speller would have done. There is probably no such thing as a strict unphonetic speller. When a word is strange, one will always spell as it "sounds." Again, B and C have both said time and again that "it doesn't *look* right." One of the writers knows of one peculiar case which must have approximated the pure visual type. A foreign schoolmate who spoke English very well became much interested in spelling, and studied her lessons diligently. If the teacher should pronounce first to her the second word of the lesson, she would probably spell the first. And this was in an oral spelling class. The fact that the class was being conducted according to the auditory-articulatory method did not affect the pupil's exclusive reliance on visual imagery.

In Chapter III several typical sources of error were discussed with respect to their cause and fre-

Dominant type of error

quency. Continued work with a few subjects reveals the fact that the frequency of occurrence of any type of error varies widely for different persons. The disposition of some to rely largely on analogies has been mentioned. Other cases in point are the mistakes due to failure to double a consonant, and those resulting from the unnecessary doubling of a consonant. A, B and C are much more likely to make an error by not doubling the consonant than the opposite, while D does just the reverse. A has a way of catching the wrong pronunciation of the word, perhaps leaving out syllables; and he will invert the order of two successive letters in either oral or written spelling. Another failing of his is the frequent interchanging of *s* and *c* when they have the same sound. The elided vowel is a constant source of difficulty, and made trouble for each member of this group.

Syllabication as an aid

The old-fashioned oral spelling made a fetish of syllabication, while the new-fashioned written spelling in many schools often ignores syllables completely. Words are written as wholes in the spelling lesson, because they are to function as wholes in actual use in the future. Some of the spelling text-books do not present words syllabicated for study. The useful purposes which syllabication may serve have already been pointed out; but the question arises whether the visual images of words are not confused by having the words chopped up into pieces, in which form they will not be used in real life. C did not seem to have any preference in the matter, but there was some complaint from A and B to the effect that words studied orally with the syllables written apart did not look familiar when finally written as wholes. Probably the advantages of syllabication may be gained without any of its disadvantages, if the words are presented in syllables, but written at least once as wholes before any test is imposed. For unless he is a pure audile, if there is such a type, the pupil needs while studying a word to see it as it is finally to appear.

Traits that make good spellers

In the course of these experiments some effort was directed toward ascertaining the correlation of spelling ability with other simple traits. This was prompted by the desire to discover the cause of A's curious spellings of the more difficult words, and his failures with the more simple ones. It had been suspected that this boy had defective vision, since he had been observed frequently rubbing his eyes. He was strong in all his school work except spelling and oral reading, though his articulation in conversation was defective. An optician had pronounced his vision normal. The Snellen test showed A, C and D to have both eyes of normal acuity, but B's right eye was below normal. The simple test for astigmatism indicated that B has some trouble with his left eye and C some trouble with both. This may assist in explaining C's frequent omission of a letter here and there in a word. The "A" test—the simple canceling of all A's on a page of letters with the pupil working at maximum speed—placed B first, C second and D third, with respect to both speed and accuracy. A was fourth in speed, but ranked between B and C in accuracy.

Attention was then directed to the hearing of the boys. A had written in an early lesson *inprove* for *improve.* After some questioning it was found that, though the word had long been familiar to him and had been used by him, he had always thought it was *inprove.* This, coupled with his phonetic pronunciation of his misspellings of various new words, suggested that he had some degree of deafness. But in a test with Seashore's audiometer, an instrument for grading very delicately the loudness of sounds, he was apparently able to detect a fainter sound than any of the other boys. This was preceded and followed by several tests on ability to discriminate or identify the sound heard. Both letters and simple words were tried. The general result indicated that A's discrimination was only slightly inferior when the proper apperceptive basis was laid. For instance, if it were announced that the choice were to be made from the letters of the alphabet or from a specified list of simple words, he would hold his own; but if the choice were made from a wide range of simple words, and he were given no cue beforehand, he would fall behind the others. Memory span for letters and for words, viz., ability to reproduce accurately a series immediately after it is presented, did not vary much between the members of this group—not enough to explain spelling differences. In fact, the series of psychological tests on simple traits demonstrated nothing for this group that correlated at all highly with spelling ability, except possibly A's defective auditory discrimination.

PART II

THE SPELLING VOCABULARY

CHAPTER IX

POPULAR VIEWS OF SPELLING NEEDS

Present theory and practise

WE may now turn from the problems of learning to spell to the question of what should be taught in spelling. The typical layman, were he compelled to select a speller for his children, would probably give preference to that text which presented word lists composed of the more difficult and unusual terms. Evidence of this may be seen in the keen interest and appreciation shown by many adults in the successful mastery of "hard" words by the young. Within the last few months, observations have been made in different schools with special reference to the word lists of the spelling lessons. A number of lists used for tests or spelling matches in different parts of the country have been collected, and educational literature has been searched for opinions as to what constitutes a fair attainment in spelling for graduates of the elementary school. Public school-teachers and administrators of long experience have been interviewed, and the opinions of university professors engaged in studying the problems of education have been gathered. The question put to all these persons was: How many words should a child be able to spell when he finishes the eighth grade? Estimates made by the various persons mentioned ran all the way from five hundred to fifteen thousand words.

The basis for making an estimate was learned in a number of cases. One person said one thousand words, because of his conviction that this number is considerably beyond the ability of many eighth-grade pupils as taught at present; and so we should be satisfied with one thousand. Two others gave an answer based on the assumption that one word per day with its inflected forms is as much as a child can learn. Another calculated about twice as many on the principle that a child can learn two words per day. Two men estimated from eight thousand to ten thousand words, one of them on the theory that the child should be able to spell from two-thirds to three-fourths of his reading vocabulary, the latter having been calculated by experiment. The principle implied in most of these estimates appears to be that a child needs to know the spelling of an enormous number of words, and that it is the duty of the school to have him master as many as possible. Some fairly close canvassing indicates that the average elementary speller contains upward of six thousand words, though there is great variation, as will be seen later. In most of our larger public schools, the spelling-book is supplemented by words selected from the child's regular studies. A rough estimate of the number of words presented to the typical pupil of a first-class elementary school, for purposes of spelling, gives from eight thousand to ten thousand. It should be added that those school men who said that four thousand words or less would be a reasonable requirement had nevertheless made a practise of using in the schools under their supervision spellers containing the usual number of words. This is merely an additional indication of the lack of a critical attitude toward the problem.

Purpose of spelling

Before proceeding to any examination or criticism of the content of these long spelling lists, it may be said that the purpose of teaching spelling should be to give the pupil the ability to write readily such words as he may have occasion to use in the typical situations of real life. We should keep clearly distinct at all times the three sorts of vocabularies—the reading, writing and oral vocabularies. Now, spelling relates to the mastery of the second of these—the writing vocabulary. Some reader may be inclined to hold that it is of value for a person to know how to spell all the words of his reading vocabulary. This would assuredly be true if there were any necessary connection between knowing how to spell a word, and recognizing that word when again presented, or recalling its significance. But there is no evidence to show that such a connection exists; indeed, plenty of evidence to the contrary can be gained by any observant teacher any day in the schoolroom. For example, every experienced teacher knows well the constant struggle which is necessary to prevent children learning glibly the spelling of many words which mean nothing to them, while poor spellers often have no trouble in getting the meaning of the words of their text-books. Many people, too, become intelligent readers of a foreign language without learning its spelling to any extent. As to the oral vocabulary, it is no doubt much nearer the writing vocabulary in scope than is the reading vocabulary. But it is perfectly obvious that efficiency in the oral use of a word does not arise from a knowledge of its spelling. It is possibly true that if an individual mispronounces a word he will be helped sometimes if he be given its spelling; but if the word be unphonetic, and the spelling be impressed upon him, he is more likely to be hindered than helped in its pronunciation.

It is sometimes asked whether the brief focusing of a child's attention on the spelling of a word, even though he does not halt long enough thoroughly to master it, may not help in transferring it from his reading to his oral vocabulary. There are probably but two factors that determine the effective adoption of a word into one's oral vocabulary. They are the content and the pronunciation of the word. The content, however, must come, not from the mechanical arrangement of the letters to form the word, or its spelling, but from its relation to other familiar words in the context. The pronunciation may be gained by the child from his knowledge of phonics, or it may come by imitating the pronunciation of another person. But attention given to the literal elements of a word in order to make out its correct pronunciation will ordinarily fall short of what is necessary in order to insure its correct spelling, except in the case of words so thoroughly phonetic that neither spelling nor pronunciation is at all difficult. Before the child can fluently use a word orally, he must grow accustomed to its sound as a whole, by hearing others pronounce it, and by pronouncing it himself, first in reading, then in conversation, so that he may come to *feel at home* with the word.

Immediate versus ultimate values in spelling

The foregoing statement of the purpose of teaching spelling should not be let pass without an additional word of explanation or qualification. By "words which the pupil will have occasion to write in the typical situations of real life," is meant only those which he will have need for after his school-days are over. The proper names found in Scott's *Lady of the Lake* and in the early chapters of United States history were a part of the spelling work in one class room which the investigator visited, yet none of the names in the list, with the exception of a few Christian names, is likely ever to be written by more than five per cent. of the members of that class in later life. Practically all of the comparatively few who will make use of these words are those who will continue their study along special lines, or who will enter teaching. When the instructor of this class was asked regarding the motive in this work, she remarked, with some show of surprise at such a question, that "otherwise the class would not spell accurately in their papers on United States history and the written language work based on the *Lady of the Lake*." Now there is no support for the notion that appreciation of either history or literature is in any way linked up with the spelling of the proper names involved; indeed there is much evidence on the other side. One of the chief dangers in the "incidental" teaching of spelling is to be found in the disposition to bring in more or less technical terms from the various studies, as in the case of history and literature. Of course, no one would countenance the conscious misspelling of any words by pupils. It would be advisable for them to come to feel that any word, no matter how rare, should be spelled correctly. On the other hand, the teacher should give the children the privilege of using the dictionary, or should inform them outright of the spelling of infrequent words, instead of including such in the regular spelling lists.

Let us now turn to a consideration of the lists of words found in spelling text-books. While every

Pruning word lists

one is likely to agree to the general proposition that such lists as are at present taught contain some useless words, there is still a lack of agreement as to what should be omitted. For instance, a distinguished educator has recently said—"I have on file a very carefully selected list of twenty thousand words, no one of which a grammar-school graduate should miss. . . . It includes only forty-five salt and fresh water fishes." He is apparently counting as separate words all standard variations of the various parts of speech, except those adding *s*, so his list would probably shrink to sixteen thousand or seventeen thousand words if reduced to a dictionary basis by eliminating all these standard variations. Yet it is to some inconceivable that a grammar-school graduate will ever write the names of forty-five fishes, unless he becomes a catcher or raiser of fish, or an ichthyologist. What about the millions of our people who live far from the seas and the lakes? The same author writes a little later, "A good standard dictionary to-day contains over four hundred thousand words, not counting plurals of nouns and other standard variations. Of these a quarter would be useful to average men if they could learn them, which is, however, obviously impossible." We can not but regard this number of words as altogether beyond reason. One hundred thousand words useful to the "average" man! Shakespeare appealed to all sorts of men, irrespective of race, with only fifteen thousand; and Milton with a modest eight thousand was able to express himself in a wide range of literature of permanent value. Life, to be sure, is more complex to-day than ever before; but the limits of the ordinary man's mind still are set, and year by year increasing specialization decreases the range within which a modern man must make his adjustments. In addition to this, one may be led to very erroneous conclusions by comparing an "average" man of the twentieth century or any other time, with the Miltons or the Shakespeares who have played so prominent a rôle in building our language.

Reasons for opposition to curtailment of vocabulary

There are two fundamental objections, implicit or explicit, that one will meet in attempting to cut down our spelling lists. The first is the exaggerated notion, just alluded to, of the use an "average" man has for a big vocabulary. This arises partly from the fact that in passing on the eligibility of a word for a place in the spelling lists of an elementary school, one almost habitually bases his judgment upon his feeling as to whether he personally has ever used that word in written communication. This is not to be wondered at, since to each of us our own experience is easily accessible, and that of others is usually remote or unknown.

The second difficulty encountered in pruning word lists lies in the prevailing domination of our elementary by our secondary schools, and our secondary by our higher institutions. Each higher institution has felt justified, until very recently at least, in prescribing for the lower school the subject-matter which is thought necessary to prepare a small portion of its membership for the superior school. The new movement to make courses of study adapted to the needs of the majority rather than the minority of pupils in the schools has thus far had no effect worth noting on spelling. In the pursuit of an inquiry relative to the spelling needs of elementary-school pupils, the writers have met with such suggestions as that they should cover the correspondence of an ex-senator, or study a newspaper of national reputation, whose columns are filled by highly trained writers. An intelligent lady argued tenaciously that the term *Mukden* (of recent military significance) should be taught because the child "may have to write it some time." No one has proposed that Cherokee or Apache, or even Spanish, Igorrote, Chinese or Hindu be made a compulsory study in the elementary school because some of the children may become interpreters or missionaries; yet the probability of the latter is surely much greater than that a considerable number of future United States senators, metropolitan newspaper correspondents, or writers of world history are sitting in every schoolroom in the land.

Of course, in all education of whatever grade, we must take some chances. If one be given a special education he may prove a misfit, and may harm rather than help society; or the child or youth may die before he reaches his productive years, thus entailing not only a heavy family loss, but a large social one as well. On the sociological side, at any rate, education can never become an exact science. There is nothing we can teach a child and be *certain* that it will function later. The best we can do is to select our materials in such a way that there will be a high degree of probability that they will all be of service in the later life of nearly all the pupils. This is the more true since one hears constantly the complaint that the program of study is overcrowded, and that many subjects really worth while have to be omitted. No one of special vocational or professional aptitude or inclination should ask to have the course for all distorted in order to minister to his peculiar needs. But if it becomes apparent that a large percentage of the pupils of a school are destined to enter a particular calling, classes may be formed for instruction in the essentials of this special business; and among those essentials may well be included the spelling of a number of technical words relating to this calling.

CHAPTER X

DETERMINING THE WRITTEN VOCABULARY OF TYPICAL AMERICANS

An experimental study of spelling needs

HAVING in view the matters discussed in the last chapter, the writers have undertaken an investigation of the spelling needs of American children. Not many attempts of this character have yet been made; but recently a survey was made of the word list employed in the issues of several Buffalo Sunday papers.* It was discovered that in about forty-four thousand running words of composition taken from the newspapers in question, about six thousand different words and forms of words were used. This number would shrink perhaps a thousand or more if reduced to a dictionary basis, as already defined. The astounding fact appeared that seven words constituted over one-fourth of the whole number. Chancellor attempted to ascertain from a number of letters that came to his desk the one thousand most important words.† This when reduced to a dictionary basis shrinks to eight hundred eighty-three words. No detailed statement, however, is made as to the manner in which the study was conducted, or as to the business and education of the correspondents. The list is not arranged in a strictly alphabetical order, consequently about a dozen words are repeated. No note is made of the comparative frequency of the different words, so that one is left in doubt as to whether frequency was actually studied at all.

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* Eldridge, *Six Thousand Common English Words.* Niagara Falls, N. Y.

† *Journal of Education,* May 26, 1910.

Ayres' study of spelling vocabularies

An interesting study of this matter was made recently by the Russell Sage Foundation.* The results were published in February, 1913, within about a week of the time that the writers concluded the task of tallying the frequency of occurrence of all words in over two hundred thousand running words of correspondence according to a method to be described presently. Doctor Ayres selected the first word of each line in two thousand letters chosen from a variety of sources. In this way twenty-three thousand six hundred twenty-nine words were tallied out of a total of one hundred ten thousand one hundred sixty. The total number of different words and different forms of words occurring one or more times was found to be two thousand one. Of these, the five hundred forty-two occurring six or more times were published in the order of their frequency. Seven hundred fifty-one of the two thousand one occurred but a single time. Although the present study is in several respects different from that of Ayres, his data will be used as a check and basis of comparison at a number of points.

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* Ayres, *The Spelling Vocabularies of Personal and Business Letters.*

How to find the needs of the "common people"

In searching for a standard to employ in estimating the writing vocabularies of typical individuals in American life, and in discovering what words are found most commonly in the written expression of ordinary people, it was finally decided to use the family correspondence of a group of adults. It would be a safe guess, probably, to say that most of the spelling needs of nine-tenths of our people relate to correspondence of a varied nature with relatives and friends. Ordinary business correspondence is attended to by stenographers, or is almost a negligible quantity as far as spelling is concerned. It is moreover of a stereotyped and usually quite technical character. For every kind of business and for every profession there are special needs; but in these we are not interested, since it is spelling for the common school that we are considering. It is likely that Ayres' lists do not quite indicate the needs of most people, because it is probable that in his study family correspondence was neglected, to the exaggeration of the importance of business letters. *Sincerely* shows a frequency of one hundred forty-two, *truly* of one hundred sixty-six, *respectfully* of sixty-three and *love* of only sixteen. Since the average length of the letters examined was only fifty-five words, surely no great proportion could have been of a family character, and only a very few could have dealt with the "tender emotion."

In the present investigation it was determined not to include a large amount of correspondence between particular friends, because they often have only a single line of interest. The vocabulary of such correspondence would therefore tend to be highly specialized. For a like reason, the correspondence of immature persons has not been used in this study to any great extent. The child's interests are not those of an adult. Many of the responsibilities of the latter are not felt until one's majority is reached. No doubt the framing of a course in spelling for elementary pupils should include a number of words which an examination of the spontaneous compositions of children of different ages shows to be useful in child life, but which plays only a small part in the average adult's consciousness. This matter is discussed fully later on.

But after all it is family letters that tend more than any other form of correspondence to call out a vocabulary dealing with the whole range of human interests. Family correspondence is not open to the usual valid objection to composition tests of spelling, viz., that the writer avoids some words, the spelling of which is uncertain, and selects others whose spelling is known. The errors which the investigators found in much of the correspondence examined were not calculated to betray reserve or embarrassment over spelling. When a word was needed, the correspondent proceeded to *spell at it,* if it were unfamiliar. On the other hand, there is in adult family correspondence no endeavor to diversify one's vocabulary for the production of special literary effects, such as characterizes all writing for publication, and renders it valueless for our present purpose.

Declining importance of spelling

In collecting the material for investigation, the conclusion has been reached that spelling has distinctly declined in importance in the last generation, and is still declining. It is entirely possible that if the present tendency continues for another century, the spelling reformers and their opponents will have only a skeleton to fight over. This result has followed from the decay of letter-writing, which in turn is the result of various social changes. Any one who will take the pains to make personal observations can verify every point that is made hereafter relating to the decay of spelling needs.

Among the conditions that have produced the changes referred to may be mentioned first the plentifulness of newspapers, magazines and books. Books and magazines supply the intellectual stimulation which the daily, weekly or monthly mail once furnished. Those who migrate to a new home, leaving behind acquaintances, friends and relatives, often have the local paper follow them at a nominal cost. Or if they do not subscribe, the "home-folks" bundle up the papers occasionally and forward them, naturally without writing, because that would entail additional expense for postage. Those in the new home may not send their own local papers regularly to the "home-folks"; but any items of special interest they clip out and enclose in a letter. Or if anything in the way of a story or witticism impresses them as unusually good, it is cut out and sent along too. The clippings often constitute the bulk of the letter.

In the second place, there is vast improvement and greater freedom in means of communication. Postal rates have been lowered, not for first-class matter only, but for all classes of mailable matter. The use of telegraph and telephone is coming within the reach of more and more people. Without cost, or for a few cents at most, people can telephone some distance across country or from town to town, transact business, or reach decisions that by correspondence would require several letters. Travel is increasing out of all proportion to population. Annual vacations, holiday rates and all sorts of excursions are substituting visiting and personal conference for letter-writing. Friends a hundred miles or two apart may not write for months; but once or twice a year they may come together and visit over their joys and sorrows.

Again, the changing status of women in the home and new business methods, are shifting the burden of letter-writing. Though the mother was in the early days the teacher and intellectual leader of the family, her other responsibilities were much heavier than to-day. She no longer goes into the fields to work; much of the family raiment is purchased ready-made; and more or less of the food is prepared outside of the home. With these changes, women have become to some extent a leisure class. They still do most of the reading and practically all of the writing for the family. A rather extensive inquiry among friends and acquaintances has shown it to be impossible to secure more than perhaps one-tenth as much written matter in general from the pens of men as from those of women. In this inquiry, households were found where men, perfectly able to write, do not, from pure disinclination to undertake the task, produce a letter from one year's end to the other. They confine themselves to signing legal papers. Professional men, possibly from their greater facility in expression, are less derelict in this connection. Yet as many of them as can afford it are known by stenographers to dictate much of their most private correspondence as well as their business letters. In these times a scholar can write a book without doing any spelling himself.

Lastly, the development of the post-card as a means of communication has proved highly destructive of letter-writing. Special cards are issued for

Thanksgiving, Christmas, New Year's, Valentine's Day, St. Patrick's Day, Easter and so on. At such times it is the custom to "remember everybody." If the intervals are unduly long, the "remembrance" comes to hand in the form of some local view or comic card. The most novel and extreme form is the short letter already written for the correspondent. "Arrived at Kalamazoo on the ... inst." The writer fills in the date. Then follow a number of statements, such as "Like the town," "Am well," "Having a good time," "The boys (or girls) are good-lookers," "Remember me to the rest." After each statement is a place for "Yes" or "No," or check for "Yes," leaving the other spaces blank.

No imminent danger of hampering the child

Many people, of course, are bound to be seriously disturbed at any movement that would tend to limit a person's knowledge of spelling to the demonstrated demands of those living a generation ahead of him. It will be asserted that if the art of written expression is on the decline, we should strive to train our children in the opposite direction, and not hamper them by reducing their writing vocabulary. All such persons should recall the fact that the decline of letter-writing is traceable to social factors, as has been shown. In no sense has it resulted from teaching the spelling of too few words. The truth of the whole matter is that every one who has finished the elementary school is carrying around in his head for years afterward hundreds, if not thousands, of words that he never writes. And is it not possible that the learning of these words extracted from his short school-days valuable time which should have been devoted to really vital instruction that he failed to get because there was "not enough time"? Moreover, this large expenditure of time and energy in learning to spell has not apparently produced good spellers. If we want good spelling, shall we not put the pressure on the most vital words, instead of on the less vital, or non-vital ones?

Suppose that by a restriction of spelling lists a child should later find himself hampered with reference to a few words. They are all in the dictionaries, pocket editions of which are easily secured. Further, why can he not learn to spell a few words after he leaves the elementary school? Why not carry spelling through the high school and even the university if necessary? As a matter of fact all intelligent adults are learning to spell every now and then. Many words commonly written to-day were found twenty years ago in the supplement of the unabridged dictionary. It should be remembered that the business of the common school is to prepare children for the life of two decades hence, while school texts, more especially spellers, are apt to reflect the needs of many decades past.

CHAPTER XI

SOURCES AND CHARACTER OF DATA

Sources of the data

IT has been the aim in this investigation to study individual needs rather than to secure a composite of the vocabularies of many persons, so the writers confined their request for correspondence to a limited number of persons—thirteen in all. Five of these persons were men and the other eight were women. Various degrees of academic training are represented, ranging from schooling equivalent to three grades of the present elementary school perhaps, up to a year of graduate work in a state university. Different sorts of interest and vocation are sampled in a fairly typical way. That the correspondence examined was not local or sectional in its character may be inferred from the statement that it bore not fewer than forty different postmarks from widely separated portions of our own country and from some foreign lands. This variety of environments should be of assistance in gaging demands for the spelling of proper names, though travel plays slightly too important a part to make the letters truly typical. Of course, it is understood that no person knew at the time of writing that any of his work was to be utilized in this study.

For the sake of completeness and definiteness, the following brief account is given of each of the thirteen persons at the time they produced the letters used by the writers:

S., fifty-six years of age, mother of a family. Her education was probably equivalent to the course of an ordinary elementary school. She contributed twelve thousand running words, written to her adult children and their families.

P., daughter of S., aged twenty-seven, mother of a family. Attended high school and took one year of university work. A voluminous letter-writer, accustomed to recount all the details of family life. Contributed forty thousand running words, taken from her letters to her mother, husband, brother and other near relatives.

C., husband of P., aged thirty. Had high-school education and completed a technical course at the university, now a civil engineer managing a factory. Contributed five thousand running words, taken in about equal portions from letters to his wife and her relatives on the occasion of a trip to California.

W., son of S., brother of P., aged twenty to twenty-five. Graduate in state university, teacher in public high school. Contributed forty thousand running words, written to his wife mainly before, but in part after, marriage.

H., wife of W., aged nineteen to twenty-four, graduate of elementary school. Contributed forty thousand running words, written to W. mainly before, but in part after, marriage.

E., sister of H., aged twenty-seven, graduate of elementary school. Bookkeeper and stenographer. Contributed five thousand running words, written to her mother and sister.

N., mother of H. and E., aged sixty-four. Had meager educational opportunities. She says she never finished the third reader. Contributed five thousand words, written to her daughters.

A., aged sixty, mother of a family. Attended the academy of an earlier day, then spent three years in a seminary of good standing, afterward taught for several years. Contributed twenty-four thousand words, written to her sisters from her Connecticut home, later from England, France and Germany.

G., aged twenty-five, postgraduate in classical languages in state university of Middle West. Teacher in girls' private school. Contributed five thousand words, written to her mother, mostly with regard to social life and personal matters outside of school.

O., aged eighteen, high-school graduate, from a home of unusual intellectual and social opportunities and stimulation. Contributed eight thousand words, written to her parents while at home and away from home.

J., aged about forty, lawyer and public man in a small city. Graduated from state normal school, and spent two years in law school. Contributed six thousand words, written to a public-school superintendent, on whose board J. once served. The letters were written before and after the two men had severed their official connections.

M., aged about twenty-three, graduate of state normal school, spent one year tutoring at Washington, then became principal of a city elementary school. Contributed five thousand words, written while serving in the two capacities above named. They were addressed to an older brother, also a teacher, but contained little "shop talk."

B., aged twenty-eight, spent two years in high school, and then took a course in the business college, is now a bookkeeper and stenographer in a wholesale grocery house. Contributed five thousand words, addressed to a brother, along business and personal lines.

Another kind of material utilized in this investigation came from three spelling-books described below. Their vocabularies were arranged alphabetically that they might be checked up with the vocabularies of the correspondents, and with one another, in order to discover the underlying principle, if any were followed, in the selection of materials for the spelling text-books of to-day, and to test readily the validity of such principles by the concrete material derived from the correspondence. Two of these spelling texts appeared in 1908, and one in 1912. They are published by two leading text-book companies, and one of the books might, perhaps, be considered the most-used elementary spelling-book in the country. These three texts were chosen because it was believed that they exemplified the better, not the poorer, attempts in modern text-book construction. They will hereafter be referred to as Spellers A, B and C.

Speller A is divided into two books, giving work stated to be for grades III-VIII inclusive. "A large number of English words that present no difficulty.....have been excluded" (Preface). The publishers make the following claim for this book: "Only those words have been admitted which belong to the writing vocabulary of the average person. The many words that are known in reading, but that are seldom if ever used by the average man in writing, have been excluded. Words that present no spelling difficulty and need no study have also been omitted."

Speller B is divided into seven books. Just how it is intended that the work of these should be adjusted to the eight grades is not stated; perhaps the most reasonable assumption is that no book is allotted to Grade I. The feature of this book is the use in adjacent sentences of the words presented in the column lessons. ".....About six thousand words, not counting different forms of verbs and nouns, are thus presented in use. Excepting a few of the most simple words used in Books I and II, no word is used in a sentence before it is given in the column..... About six thousand more words, classified as 'additional' and 'less common' words ..... are given in columns following the regular sentence presentation" (Preface).

Speller C outlines work for the entire elementary course, except the first half of the first year. A large number of dictation and completion exercises are presented. Many of the former are selected from literary masterpieces, and contain large numbers of more or less uncommon words. A statement made in the introduction as to not requiring pupils to learn uncommon words evidently meant that any unusual literary names (those applied to literary characters, not the names of the authors themselves) should be omitted. Everything save directions to pupils has been included in calculating the vocabulary of this text. However, in the case of word-building exercises, the words actually found in the book, and not those built by the pupil, have been taken into account. The French and Latin words and phrases are marked in the text, "For reference only."

No consideration of test lists

Test lists used in different parts of the country on important spelling occasions would not be of much value in this investigation. If judged by the criterion of their frequency of use in after life, they would be found wanting. However, one must not forget that the purpose of these competitions is not normally to teach pupils how to spell, but to make them *fail to spell,* so that the question of personal superiority can be settled. Hence it is to be expected that comparatively rare words must be drawn in very largely before a decision can be reached. No one can doubt, though, that special test lists for everyday purposes in the regular school work should be graded carefully, that they should consist of words that people often use, and that a pupil's promotion in spelling should depend on his capacity for spelling words that he is later to use in expressing himself.

Rules of procedure

In the arrangement of vocabularies in this investigation, several rules of procedure have been kept in mind, and followed as consistently as possible. First of all, the dictionary basis has been adhered to. This has resulted in the appearance in every list of nouns in the singular number and nominative case only, though a few plurals appear in cases where the plural is the form habitually employed. The singular of no such word is then permitted in the list. The same policy is followed relative to another group of words, such as *news, afterwards, besides,* etc. But the various forms of the personal pronouns are so highly disparate that all variant forms are included, except *ours, yours* and *theirs.* Likewise only the positive degree of adjectives is included, except that the comparative or superlative occurs for the few which lack a positive form. So also of verbs; the present infinitive is considered the root form. To illustrate, for the verb *to be,* the forms, *is, are, was, were, being, been,* are always checked as *be.* The justification for such procedure is, first, that it simplifies the problem; and, second, that an individual who has any real use for a root word will doubtless have also a real use for its inflected forms, though of course some of the derivatives may have a very different frequency of use from the root word itself.

In the second place, words of identical spelling and like pronunciation are not differentiated in the lists. For instance, *might* is always referred to *may,* whether it be the past tense of the latter, or the noun meaning power or strength. As far as dealing with the lists in spelling texts goes, it is impossible to tell, when we see *might* in a column, whether it is a noun or a verb. Hence we need to act similarly in dealing with correspondence. And while from some points of view it would perhaps be desirable to know whether in spelling we should stress *might* as a noun or as a verb, it is probable that as long as the phonic elements are the same, if the child learns to spell the word merely as one part of speech, he will spell it correctly in its other forms, barring a homonymic interference. Many simple words, like *hoe* (noun and verb), *pin* (noun and verb), etc., come under the principle just mentioned.

In the third place, words of identical spelling but dissimilar pronunciation are included but once. This, too, was necessitated by the fact that words like *grease* and *canon* do not always have their pronunciation indicated in the columns of the spelling-book. Difficulty with or confusion in the use of such words can be obviated by teaching them with both their meanings and their appropriate pronunciations. This need not often involve the teaching of an uncommon word, or a common word with an uncommon signification, unless the teacher is injudicious enough to go outside his own reading vocabulary.

I, a and *o* have been excluded from consideration, for while they are technically words, they are also mere letters, and the question of spelling obviously does not enter in. All syncopations are entered as though written in full, except the single one, *o'clock,* which is standard and preferable to the full form on all occasions. A few of the more common apostrophized forms would have been included, had it been possible to tell where to stop; but *I'll* leads on to *I'd,* and *you'd,* and finally *who'd,* so all such forms were regarded as if the words had been written in full. In dealing with the correspondence, all abbreviations are treated as if written in full, except *Mr., Mrs., etc.* and *O. K.,* and the initials of persons. These latter are totally disregarded. The reason is that aside from *o'clock,* and the abbreviations just mentioned, the knowledge of the spelling of a word may be presumed to have preceded the knowledge of its abbreviation, and for the additional reason, that the abbreviation in all except the most familiar correspondence is not yet recognized as good form. Baby talk is excluded, but large numbers of colloquial expressions, if justified by the dictionary, are included. *The Standard Dictionary* has been used in determining the eligibility of such words.

Some arbitrary standard had to be recognized in the treatment of numbers, so it was decided to exclude from consideration all dates, all street numbers, all quantities of money expressed in decimal fashion, all hours of the day when in the standard form (e.g., 5:45), all numbers over one hundred, except round numbers like a thousand, ten thousand, or a million. Such a course seems advisable, because the exemptions made are properly expressed by figures.

All words with hyphens have been considered as two words. Foreign words and expressions scarcely naturalized have been kept in a segregated list in the examination of both spelling texts and correspondence. Proper names of every sort have also been segregated into a special list. They are noted as to frequency in all the correspondence, but not considered a part of the vocabulary of any person, since changing associations in the local environment will constantly introduce new names. Consequently proper terms are skipped in counting off the two hundred thousand words of correspondence. Words which become proper names only in specific connections, as seen in the expressions, *Kansas City,* or *Franklin Street,* and even there retain their general significance, are not considered as proper names.

The arrangement of words

The vocabulary found in the correspondence of each person has been kept entirely separate from everything else, so that, as explained above, we might gain some view of the extent of individual needs, and, what is still more important from the point of view of the public school, we might examine the general agreement or community of needs. Though the frequency of each word is given in the lists of this study, the words are not arranged according to frequency because, in the first place, if one examines a "frequency" list one finds it difficult to tell whether a particular word is present, to say nothing of the probability of clerical mistakes leading to duplications. With Ayres' list no doubt extraordinary care was exercised, yet in the published portions at least three words are repeated, which alters more or less seriously their position in the list. Second, a word which has a given frequency and is universally used should be given a more prominent position in the list than one which occurs somewhat more frequently but serves only three-fourths as many persons, showing that its idea is less universalized or permits of ready expression in other ways. In the present study, the word *big* has almost exactly twice the frequency of *busy,* yet it does not occur in the letters of two of the thirteen correspondents, because its idea can be expressed by *large*. Neither of these two persons is among the three who fail to use *large*. But *busy*, for which no ready substitute seems to be offered, is employed by every subject. Illustrations could be multiplied *ad libitum*. Third, where the correspondence of a limited number of persons is studied in detail, as in the present case, the prominence given to a somewhat unusual word by two or even one of the subjects might place it in an entirely false light if frequency were the basis of arrangement.

CHAPTER XII

WORD LISTS DERIVED FROM CORRESPONDENCE

The method of classifying data

THE plan followed in tabulating the data of this investigation has been to divide the total vocabulary of the thirteen correspondents into four alphabetical lists. List I contains words used by all the correspondents; List II, those used by a majority of them; List III, those used by more than one but less than a majority; List IV, those used by one writer only. Immediately after each word is placed its frequency in the two hundred thousand running words. In the third column is noted how many of the three spelling-books, A, B and C, contain it. In the fourth column stands the list in which the given word comes if only the women correspondents be considered. In the fifth column the same information is given from the standpoint of the men correspondents. All vacant spaces in Columns III, IV and V signify non-occurrence. In Column VI the letters A and C indicate respectively whether found in Ayres' published list of the five hundred forty-two most frequent words, or in Chancellor's list of the thousand most common words in every-day use. Columns IV and V are omitted in List I, since they would be simply a succession of I's.

LIST I

186 WORDS—WORDS USED BY ALL THE CORRESPONDENTS

I	II	III	IV
about	889	2	AC
after	365	2	AC
afternoon	389	2	A
again	256	3	AC
all	1369	2	A
almost	153	3	C
also	166	3	A
an	346	1	AC
and	8252	2	AC
another	166	2	A
any	530	2	AC
around	143	2	C
as	1368	1	A
ask	186	2	A
at	1240	1	A
away	193	2	A
back	299	2	AC
be	9711	2	AC
before	361	2	AC
boy	171	2	AC
build	89	3	AC
busy	71	3	AC
but	1771	2	AC
by	439	2	A
can	1190	3	AC
cannot	392	1	
church	159	2	A
come	946	2	AC
course	202	3	A
day	916	2	AC
dear	481	2	AC
do	2498	3	AC
down	384	2	AC
enough	158	3	A
even	360	2	AC
ever	222	2	AC

I	II	III	IV
every	232	3	C
far	96	2	C
feel	473	2	AC
few	156	2	AC
find	217	2	AC
first	237	2	A
for	2263	1	A
four	172	3	AC
friend	90	3	AC
from	895	1	A
get	1667	2	AC
give	309	2	AC
glad	235	2	AC
go	1981	1	AC
good	837	2	AC
guess	128	3	
have	4562	3	AC
he	1166	2	AC
hear	279	3	AC
help	224	2	AC
her	1061	2	AC
here	613	3	A
him	459	1	AC
his	441	1	A
home	496	2	A
hope	259	3	AC
hour	170	3	A
house	367	3	AC
how	433	2	AC
if	1050	1	AC
in	2511		A
it	3607	2	A
just	763	2	A
keep	205	3	AC
know	790	3	AC
last	531	2	AC
late	102	2	AC
leave	348	2	AC
let	208	2	AC
letter	800	2	AC
like	553	2	AC
little	778	2	AC
live	117	3	
long	279	2	AC
look	386	2	A
make	633	3	AC
man	206	2	AC
many	314	3	AC

I	II	III	IV
me	1377	1	AC
mine	57	2	C
morning	478	2	AC
much	947	2	AC
must	399	1	AC
my	1457	2	A
need	114	3	AC
never	247	2	AC
new	220	2	AC
next	302	2	AC
nice	198	2	AC
night	547	2	AC
no	335	1	AC
not	2878	2	AC
nothing	71	2	AC
now	489	2	AC
of	3252	1	AC
off	175	2	AC
old	294	2	AC
on	1175	1	AC
one	1117	2	AC
only	419	3	AC
or	680	1	A
other	344	2	AC
ought	97	3	C
out	703	2	AC
over	427	2	AC
own	176	2	C
part	109	2	AC
pay	168	3	AC
people	160	3	AC
place	217	2	AC
pretty	249	3	A
put	254	2	AC
quite	159	3	AC
rest	125	1	C
right	242	3	AC
run	101	2	C
same	110	1	AC
say	906	2	AC
see	789	3	AC
seven	66	2	C
several	56	2	AC
she	1542	2	AC
show	71	3	AC
six	124	2	C
so	1729	1	AC
some	750	2	AC

I	II	III	IV
soon	196	2	AC
spend	103	2	C
start	143	2	A
such	224	2	A
suppose	164	2	
sure	179	3	A
take	535	2	AC
talk	149	3	AC
tell	669	2	AC
than	321	2	AC
that	2514	2	AC
the	7606	2	AC
their	210	3	AC
them	636	2	AC
then	456	2	AC
there	852	3	AC
they	925	2	AC
thing	414	2	AC
think	1178	2	AC
this	1236	2	AC
though	148	1	AC
three	251	2	AC
through	160	3	A
time	893	2	AC
to	7553	2	AC
too	408	3	A
town	165	2	C
train	148	3	AC
try	199	3	AC
two	501	3	AC
up	782	1	AC
us	368	2	A
use	160	3	AC
very	644	3	AC
visit	102	3	A
want	543	2	A
way	271	2	AC
we	2218	2	AC
week	505	3	AC
well	672	2	AC
what	479	2	AC
when	766	2	AC
where	162	2	AC
which	255	3	AC
while	204	3	A
will	3058	3	AC
wish	252	2	A
with	1314	2	AC

I	II	III	IV
write	867	3	AC
year	254	2	AC
yesterday	317	2	AC
yet	180	2	C
you	4099	1	AC
your	1117	2	AC

LIST II

577 WORDS—WORDS USED BY A MAJORITY OF THE CORRESPONDENTS

I	II	III	IV	V	VI
able	100	2	II	I	C
above	25	2	III	I	
accept	12	3	III	I	A
account	31	2	II	I	A
across	36	3	II	I	C
act	27	2	III	II	C
add	15	2	III	I	C
address	35	3	II	II	A
advantage	15	2	III	I	
afraid	79	3	II	IV	C
afterward	12	1	II	II	
against	25	2	III	II	C
age	32	2	II	II	
ago	81	1	II	I	A
ahead	23	2	II	II	
air	21	2	II	II	
allow	18	3	II	III	A
alone	43	3	II	III	A
along	91	1	I	II	
already	45	2	II	II	C
always	153	3	II	II	AC
among	23	3	II	II	AC
amount	28	2	II	II	
answer	108	3	II	II	A
anxious	29	3	II	III	
anything	190	1	I	II	A
anyway	33		II	III	
appreciate	17	2	III	II	A
arrive	75	2	II	I	A
asleep	20	3	II	IV	
attempt	13	1	II	III	
attend	42	2	III	I	A
aunt	170	3	I	II	C
automobile	47	3	II	III	

I	II	III	IV	V	VI
avenue	32	2	II	III	
awful	91	3	II	III	
awfully	26		II	III	
baby	39	2	II	III	AC
bad	244	2	II	I	AC
badly	23	1	II	II	C
bank	30	2	II	II	C
basket	16	3	II	III	
bath	35	2	II	III	
beat	36	3	III	II	C
beautiful	67	3	II	II	
because	263	2	I	II	A
become	36	1	II	II	A
bed	170	2	I	II	AC
begin	97	2	II	II	AC
believe	168	3	II	II	AC
beside	48	2	II	III	
between	40	3	II	I	
big	141	2	II	II	C
bill	38	2	II	III	C
birthday	31	2	I	IV	
bite	67	2	II	II	
black	32	2	II	IV	C
blame	12	2	II	III	C
block	33	2	II	II	
blood	18	2	II	III	C
blow	21	2	II	III	C
blue	43	2	II	III	C
board	125	3	II	II	AC
body	15	1	II	III	C
book	104	2	II	II	AC
both	140	2	II	I	A
bottle	12	3	II		
bottom	12	3	III	II	
box	95	2	I	II	A
bread	30	3	II	IV	C
break	45	3	I	II	C
breakfast	62	3	I	III	C
bring	91	2	II	II	C
brother	74	3	II	II	
brown	21	2	II	III	C
burn	28	2	II	III	
business	99	2	II	I	AC
butter	22	1	II	IV	C
buy	122	3	II	I	C
cake	39	2	II	IV	
call	151	2	I	II	A
car	77	1	II	II	C

I	II	III	IV	V	VI
card	95	2	I	II	A
care	119	2	II	II	C
careful	25	3	II	II	
carry	47	2	II	II	C
case	27	2	II	II	A
catch	38	3	II	II	C
cause	25	3	II	II	AC
cent	118	3	II	II	AC
certain	20	3	III	II	A
certainly	71	2	II	II	
chair	36	2	II	II	C
chance	39	2	II	II	
change	86	2	II	I	AC
charge	29	2	II	II	
cheap	22	3	II	III	
cheese	11	3	II	IV	
chicken	25	2	II	IV	C
child	160	3	II	II	AC
chop	11	2	II	III	
city	77	2	II	I	A
class	74	2	II	I	A
clean	117	2	I	II	C
clear	50	2	II	III	C
clock	10	2	II	III	
close	129	2	II	I	C
cloth	18	3	II		
clothe	70	2	I	III	C
coat	46	2	II	II	
coffee	24	3	III	II	
cold	167	2	I	II	AC
color	26	3	II	II	C
comfort	16	3	II	III	
comfortable	14	2	II	III	C
common	15	2	III	II	C
company	59	3	I	II	A
compare	13	1	II	II	
concern	11	3	III	II	
condition	21	2	II	II	
continue	11	3	III	II	
cook	36	2	II		C
cool	41	2	II	III	
copy	19	3	III	II	A
corn	15	2	II	III	C
cost	78	2	II	II	AC
count	24	2	II	III	C
country	36	3	II	I	AC
couple	37	2	II	II	
cover	35	2	II	II	A

I	II	III	IV	V	VI
crazy	29		II	IV	
cross	27	2	II	III	
cup	12	2	III	II	C
cure	13	2	II	IV	
cut	81	2	II	II	
dance	38	2	II	III	
dark	36	2	II	III	C
date	24	2	II	II	AC
daughter	12	3	II	III	AC
dead	24	3	II	III	C
deal	63	2	II	II	
death	27	2	II	III	C
decide	65	3	II	II	A
degree	11	2	II	II	
die	27	3	II	IV	C
difference	19	2	III	II	C
different	45	2	II	II	AC
dinner	182	2	I	II	C
direct	13	2	III	II	AC
disappoint	34	3	III	II	
dish	31	2	II	III	C
divide	9	3	II	III	C
doctor	152	3	II	II	AC
dollar	37	2	I	II	C
door	53	2	II	III	C
doubt	22	3	II	I	C
dress	174	2	I	II	C
drive	39	2	II	II	C
drop	31	2	II	II	
dry	33	2	II	II	
during	47	1	III	II	A
dust	29	2	II	III	C
duty	24	3	II	II	C
each	93	3	II	II	A
early	55	3	II	II	AC
earth	10	2	II	III	C
eat	126	2	I	II	C
effect	13	2	II	I	C
eight	66	3	I	II	C
either	62	2	I	II	A
electric	10	2	III	II	
eleven	31	3	II	II	
else	67	3	I	II	A
enclose	30	2	II	II	A
end	57	2	II	II	C
enjoy	107	2	II	I	AC
equal	14	3	III	II	
especially	37	1	III	I	A

I	II	III	IV	V	VI
everybody	37	2	II	II	
everything	105		II	I	
examination	26	1	III	II	A
except	78	2	II	II	
excuse	15	3	II	III	
expect	147	3	I	II	A
expense	19	3	III	II	A
experience	13	2	II	II	A
express	20	2	II	III	
extra	33	2	II	II	
eye	66	2	II	II	C
face	58	2	II	II	C
fact	40	1	III	I	C
fail	23	3	III	II	C
fair	35	3	II	II	C
fall	68	2	II	II	C
family	84	3	II	II	C
fast	35	2	II	III	
fat	15	1	II	IV	
father	87	2	II	III	AC
fear	20	2	II	III	C
fellow	63	2	II	I	C
fifteen	40	3	II	III	
fifty	30	2	III	II	C
fight	16	3	III	I	C
fill	38	2	I	III	A
fine	170	2	I	II	AC
finish	150	2	II	II	
fire	51	3	II	III	
fit	33	2	II	II	
five	161	2	I	II	C
fix	47	1	II	II	C
flat	21	2	II	II	
floor	42	2	II	II	C
folk	157	2	II	II	
follow	28	2	III	I	AC
foot	58	2	II	II	C
forenoon	123	2	II	III	
forget	75	2	II	II	
fourth	16	1	III	I	
free	27	2	III	II	C
front	37	2	II	II	C
full	51	2	II	I	
fun	28	2	II	III	
funny	31	2	II	II	
further	22	3	III	II	A
game	64	2	I	III	C
gate	13	3	III	II	

I	II	III	IV	V	VI
gather	12	2	II	III	C
general	11	3	III	II	AC
girl	410	2	I	II	AC
glass	26	2	II	II	AC
grade	24	2	III	II	
grand	22	2	II	II	C
great	168	3	II	I	AC
green	29	2	II	III	C
grind	33	2	II	II	C
grip	13	1	II	IV	
grow	38	3	II	II	C
hair	46	3	II	IV	C
half	120	3	II	II	AC
hall	24	2	II	II	C
hand	90	2	II	I	AC
hang	43	2	II	III	
happen	45	2	II	II	C
happy	92	2	II	II	C
hard	186	2	I	II	AC
hardly	65	1	II	II	
hat	45	2	II	III	AC
hate	18	1	II	II	C
head	74	3	I	III	C
health	13	3	II	III	
heart	51	3	III	II	C
heat	27	2	III	II	C
heavy	38	3	II	II	C
herself	36	1	II	II	
high	101	2	II	I	C
himself	28	2	II	II	
hold	72	1	II	II	A
hole	17	2	II	II	
horse	21	3	II	II	C
hot	81	2	II	III	C
hotel	52	2	II	II	
however	37	1	III	II	AC
hurry	36	2	II	II	
hurt	60	2	II	III	C
idea	28	2	II	II	
imagine	52	3	II	II	
impossible	17	2	III	II	A
improve	17	3	II	II	
inside	16	2	II	II	C
insist	17	2	III	II	
instead	50	2	II	II	A
intend	44	2	II	II	A
interest	68	2	II	I	A
into	125	2	II	I	C

I	II	III	IV	V	VI
invite.................	54	2	II	II	C
iron.................	71	3	II	III	C
job.................	60		II	II	
join.................	13	1	II	III	
kid.................	47	1	II	II	
kill.................	13	3	II	IV	
kind.................	100	2	II	I	AC
kiss.................	84	2	II	III	
kitchen.............	38	2	II	III	C
lady.................	65	2	II	II	A
land.................	23	2	III	II	AC
large.................	65	2	II	II	AC
lately.................	10		III	II	
learn.................	56	3	II	II	C
lesson.............	17	2	II	III	A
library.............	11	3	III	II	
life.................	70	3	II	I	C
light.................	52	3	II	II	C
line.................	82	2	II	I	AC
listen.............	11	3	III	II	
lose.................	52	2	II	II	
lot.................	162	1	I	II	C
love.................	526	3	I	II	AC
lovely.............	47	1	I		
low.................	32	2	II	III	C
lunch.............	43	2	II	II	
machine.............	15	3	II	II	C
mail.................	105	3	II	III	A
manage.............	23	3	III	II	
matter.............	56	2	II	II	AC
may.................	288	3	II	II	AC
maybe.............	64		II	IV	
meal.................	23	3	III	II	
mean.................	106	3	II	I	AC
meet.................	173	3	II	II	AC
mention.............	33	3	III	I	A
mighty.............	21	1	II	II	
mile.................	65	2	II	II	C
mind.................	83	1	II	II	
minute.............	79	3	I	II	C
miss.................	45	2	II	II	
moment.............	16	2	III	II	C
money.............	98	3	II	I	AC
month.............	124	2	I	II	AC
mother.............	275	2	I	II	AC
move.................	78	2	II	II	AC
music............. ..	22	3	III	II	
myself.............	80	1	I	II	

I	II	III	IV	V	VI
name	52	2	II	I	A
nature	10	2	III	I	C
near	54	2	II	I	C
nearly	38	1	II	II	
necessary	32	3	III	I	A
neck	48	2	II	III	C
neither	12	3	III	II	
nerve	11	3	III	II	
nine	58	2	II	II	C
noise	11	3	II	III	C
none	33	2	II	II	AC
noon	76	2	I	II	C
north	132	2	II	II	
note	35	2	II	I	AC
notice	22	2	II	II	
number	55	2	II	II	AC
o'clock	162	2	I	II	A
offer	27	3	II	II	AC
office	72	3	II	I	AC
often	70	2	II	II	C
oh	54	1	II	II	
once	96	3	I	II	A
open	55	2	II	II	AC
order	63	2	II	I	AC
otherwise	16		III	II	
our	401	2	II	I	AC
ourselves	26	1	II	III	
outside	12	1	II	III	C
owe	22	3	II	II	
pa	137		III	II	
pack	30	2	II	III	
package	20	2	II	IV	
paint	9	3	III	II	C
paper	105	2	II	II	AC
park	32	1	III	II	
parlor	30	3	II	III	
party	47	2	II	II	
pass	60	2	II	I	A
past	53	2	II	I	C
pen	17	2	II	III	C
per	38		III	II	
perhaps	110	3	II	II	A
person	34	2	II	III	AC
piano	18	3	III	II	
pick	17	2	II	III	
picture	95	3	II	III	AC
pie	30	2	II	II	C
piece	62	3	II	II	C

I	II	III	IV	V	VI
pillow	28	3	II	IV	
pin	18	2	II	IV	C
plan	70	2	II	I	AC
play	172	2	II	II	
pleasant	61	3	II	II	AC
please	89	2	II	II	AC
plenty	21	2	II	III	C
point	18	2	III	II	C
poor	84	2	II	II	C
porch	27	2	II	III	
possible	48	3	II	II	A
post	29	3	II	II	A
postscript	57	2	II	II	
potato	33	3	II	III	C
power	8	2	III	II	C
prepare	18	3	III	II	
present	60	3	II	II	AC
price	43	3	III	II	C
probably	85	1	II	II	AC
professor	13	2	II	III	
promise	33	3	II	II	AC
pull	30	2	II	III	
quarter	25	3	II	II	C
question	52	3	II	II	AC
quick	17	2	II	III	C
quiet	26	3	III	II	C
quit	36	1	III	II	
rain	104	3	I	II	AC
raise	22	3	II	II	C
rather	101	2	II	II	C
reach	64	2	III	I	AC
read	179	2	II	II	AC
ready	100	3	I	II	AC
real	59	3	II	II	C
realize	26	2	III	II	
really	79	3	II	II	C
reason	46	3	II	II	A
receive	148	3	II	II	AC
red	39	2	II	III	AC
regard	38	2	II	II	A
remain	19	2	III	I	AC
remember	98	2	II	I	AC
rent	62	2	II	II	C
report	18	2	III	II	A
request	9	1	III	II	A
return	72	2	II	I	A
rich	14	1	III	II	C
ride	84	3	II	II	C

I	II	III	IV	V	VI
ring	16	3	III	II	AC
road	16	3	II	III	C
rock	26	2	II	II	
roll	14	2	II	III	
roof	13	3	II	II	
room	240	2	I	II	AC
safe	13	1	II	III	C
satisfy	29	3	II	III	
save	46	2	III	II	
scare	10	2	II	III	
school	231	2	I	II	AC
seat	34	2	II	III	
second	47	2	II	I	AC
seem	274	2	II	II	AC
select	9	2	III	II	A
sell	29	3	III	II	C
send	385	3	I	II	AC
serve	30	2	II	II	C
service	45	3	III	I	A
set	38	2	II	II	A
settle	39	2	II	II	C
seventy	22	1	II	III	C
sew	69	3	II		C
shall	612	3	II	I	AC
shop	31	2	II	II	
short	91	2	II	I	AC
sick	132		I	III	C
side	90	2	II	II	C
sight	24	3	II	II	C
sign	18	3	III	II	C
silk	15		II	IV	
since	185	3	I	II	AC
sister	123	2	II	II	C
sit	95	2	II	III	
sixty	28	1	II	IV	C
size	28	3	II	II	A
skirt	46	2	II	IV	C
sleep	104	3	II	III	C
small	76	1	II	II	AC
smoke	34	2	III	II	C
snow	23	2	II	II	C
something	154	1	I	II	A
sometime	71	2	II	II	C
son	12	3	III	II	
sore	33	3	II	III	
sorry	92	3	II	II	A
sort	32	2	II	III	
sound	24	2	II	II	C

I	II	III	IV	V	VI
south	30	2	II	II	C
speak	76	3	II	I	AC
special	18	2	III	II	A
spell	29	2	II	IV	
spoil	14	1	III	II	C
spot	12	2	III	II	
spring	44	2	II	II	C
stair	71	3	II	III	C
stand	83	2	II	II	AC
state	25	2	II	II	A
stay	215	2	I	II	
step	30	2	II	II	
stick	18	2	II	III	C
still	105	2	I	II	AC
stock	34	2	II	II	C
stop	124	2	I	II	AC
store	47	2	II	II	C
story	42	2	II	II	C
stove	33	2	II	IV	
street	181	2	I	II	AC
strike	24	2	II	II	C
strong	43	2	II	II	C
student	16	2	III	II	
study	41	3	II	II	A
stuff	29	2	III	II	
style	18	3	II	II	
success	16	3	III	II	AC
suggest	9	2	III	II	A
suit	91	3	I	II	C
summer	79	3	II	II	AC
sun	24	1	II	III	
supper	94	3	I	II	
surprise	39	2	II	I	A
sweet	40	3	II	III	C
table	39	2	II	II	AC
taste	15	2	II	II	C
teach	37	3	III	II	
teacher	90	2	III	II	AC
ten	107	2	II	I	C
terrible	52	3	II	II	A
thank	31	2	II	III	A
thick	11	2	III	II	C
thin	21	3	II	IV	C
third	55	2	II	II	
thirty	39	2	II	II	C
thoroughly	11	1	III	II	
throw	24	8	II	II	C
ticket	37	3	III	II	A

I	II	III	IV	V	VI
tight	15	2	II	III	C
till	103	2	II	II	
tire	112	2	II	II	C
together	73	3	II	I	
tomorrow	170	2	I	II	AC
top	21	1	I	II	C
treat	20	2	II	II	
tree	36	2	II	III	C
trip	100	1	II	II	
trouble	93	3	II	II	AC
trunk	39	2	II	III	
turn	69	2	I	II	C
twelve	29	3	II	III	C
twenty	105	3	II	I	C
twice	34	3	II	III	C
uncle	72	3	I	II	C
under	42	2	II	II	AC
understand	47	2	II	II	AC
university	31	2	II	II	
unless	57	2	II	II	
until	240	3	II	I	A
upon	22	2	III	I	A
usual	38	3	II	II	
vacation	10	3	III	II	
view	16	3	III	II	
waist	52	3	II	IV	
wait	113	3	II	I	A
walk	108	3	I	II	C
wall	23	2	III	II	C
warm	71	2	II	II	C
wash	117	2	II	III	C
waste	14	3	II	II	C
watch	19	3	II	III	AC
water	54	3	II	II	C
wear	112	3	I	II	AC
weather	77	3	II	I	AC
west	35	2	II	II	AC
whatever	24	2	II	II	
whether	102	2	II	I	AC
white	67	2	I	II	AC
who	208	1	II	I	AC
whole	54	3	II	II	C
why	80	2	II	II	A
wife	45	3	II	II	C
win	22	3	III	II	C
wind	28	2	II	IV	C
window	35	3	II	II	
winter	72	2	II	II	C

I	II	III	IV	V	VI
without	104	2	II	I	AC
woman	50	3	I	III	AC
wonder	96	3	II	II	A
wonderful	28	2	III	II	C
word	74	2	II	I	C
work	357	2	II	I	AC
world	28	2	III	I	AC
worry	52	3	II	II	
worth	40	2	II	I	A
wrong	27	3	III	II	C
yard	30	2	III	II	C
yellow	11	3	II	III	C
yes	56	1	II	II	A
young	104	3	II	II	C
yourself	21	1	III	II	

LIST III

2207 WORDS—WORDS USED BY LESS THAN A MAJORITY OF THE CORRESPONDENTS

I	II	III	IV	V	VI
absence	5	3	III	III	A
absent	4	3		II	
absolutely	7		IV	II	
academy	3	3	IV	IV	
accent	3	2	III	IV	
accommodation	6	1	III		
accompany	7	3	III	III	
accomplish	15	2	III	III	
accord	6	2	III	III	
accuse	2	3	IV	IV	
accustom	2	2	III		
ache	28	3	II	IV	
acid	3	3	III		
acknowledge	3	3	IV	IV	
acquaint	8	2	III	III	
acquaintance	4	3	III	IV	
acquire	3	3	III	IV	
acre	5	3	IV	III	
action	10	2	IV	III	
active	2	2	IV	IV	
actually	5	1	III	II	
acute	3	2	III		
addition	4	3	III	III	
additional	4	1	IV	III	
adjoin	2	1	III		

I	II	III	IV	V	VI
adjourn	2	3		III	
administration	3	1		III	
admire	6	1	II		
admission	2	2	IV	IV	
admit	7	2		II	
adopt	6	2	IV	III	
advance	7	1	IV	III	
advertise	4	3	III	III	
advice	4	2	III	IV	
advise	7	1	III	III	
affair	17	2	III	II	
affect	3	3	IV	IV	
affectionate	4	1	IV	IV	
affectionately	17	1	III		
afford	12	3	III	IV	
afire	2		IV	IV	
agency	5	2		III	
agent	13	2	III	III	
aggravate	5	2	III		
agree	15	3	III	III	C
agreeable	6	2	IV	II	C
aid	6	3	IV	II	
ail	3	1	III		
aim	4	2	IV	IV	
aisle	2	3	IV	IV	
alarm	4	2	III		
album	2	1	IV	IV	
alcohol	3	2	III		
algebra	4	2	III	IV	
alike	4	2	III		
alive	7	2	III	IV	
alley	2	3	III	IV	
aloud	6	2	III	IV	
alphabet	2	3	IV	IV	
altar	2	3	IV	IV	
alter	5	3	III		
alteration	2		III		
although	51	2	III	III	
altitude	5	2	III		
altogether	6	2		II	
amateur	2	3	IV	IV	
ambition	5	2	III	IV	
amuse	4	3		III	
anesthetic	2	1	IV	IV	
angel	3	3	IV	IV	
angry	6	2	III	IV	C
animal	7	3	III		C
ankle	5	3	III	IV	

I	II	III	IV	V	VI
anniversary	4	3	III		
announce	3	3	IV	IV	
announcement	3		IV	IV	
annually	2	1	IV	IV	
anybody	12		III	IV	
anyhow	20	1	III	IV	
anywhere	6		III	III	
apart	8	2	III	IV	
apartment	12	1	III	IV	
apiece	9		III	IV	
apparatus	6	3	IV	IV	
appeal	4	3	IV	III	
appear	9	3	III	III	A
appearance	2	3		III	
appetite	6	3	III		
apple	24	2	II	IV	
application	5	2	IV	III	A
apply	4	2	III	IV	
appoint	4	2	IV	III	A
appointment	3	1	III	IV	
appreciative	2		IV	IV	
approach	4	3	III	IV	
appropriate	4	2	III	IV	
approve	7	2	III	IV	
approximately	3		IV	IV	
apron	15	3	III		
apt	2	2	IV	IV	
area	2	3	III		
argue	4	3	IV	III	
argument	6	3	IV	II	
arm	57	2	II	IV	C
arrange	12	3	III	II	A
arrangement	10	1	III	II	
arrival	5	3	IV	III	
art	6	2	II		
article	7	2	III	III	A
artificially	2		IV	IV	
ashamed	5	2	III	IV	
aside	6	1	III	III	
assembly	3	1	III		
assist	5	2	III	IV	
assistant	4	2	III	III	
associate	4	3		III	
association	9	2	III	III	A
assume	2	2	IV	IV	
assure	11	2		II	A
attack	6	2	IV	II	
attendance	5	2	III	III	

I	II	III	IV	V	VI
attention	8	2	III	II	A
attentive	2	1	IV	IV	
attic	5	2	III	IV	
attorney	3	3	IV	III	
attraction	5	1	III	III	
auction	2	3	III		
autobiography	2	2		III	
average	7	2	III	III	
aviary	2	1	III		
avoid	5	2	IV	III	
await	7	3	IV	II	A
awake	12	2	III	III	
awaken	3	1	III	IV	
awhile	16		III	IV	
bachelor	7	2	III	IV	
backward	6		IV	III	
bacon	8	3	III		
bag	11	1	III		
baggage	5	2	III		
bake	44	3	II		C
balance	7	3	III		
bald	3	2	IV	IV	
ball	29	2	III	III	C
banana	2	3	III		
band	11	2	III	IV	
banquet	19	3	III	III	
bar	2	2	IV	IV	
bare	10	3	III	III	
barely	5		III	III	
barn	13	2	III	IV	
barrel	6	3	III		
barrier	2	1		III	
base	16	2	III	III	
baseball	16	1	IV	IV	
basement	3	3	III		
bat	8	1	IV	IV	
bathe	8	2	III		C
bathroom	14		II	IV	
bawl	2	2		III	
bay	8	1	III	III	
beach	10	3	III	IV	
bead	5	3	III		
bean	18	2	III	IV	C
bear	20	3	III	II	C
beautifully	7	1	III		
beauty	5	3	III	III	
bedroom	16	2	III		
bedtime	3		IV	IV	

I	II	III	IV	V	VI
bee	2	2	III		
beef	7	2	III		C
beer	4	1	III	IV	
beforehand	3	1	III	IV	
beg	7	2	III	III	A
behave	3	2	III		
behind	11	2	III	III	C
behold	2	2	IV	IV	
bell	8	2	III	IV	
belong	15	2	III	III	
below	7	2	III	IV	C
belt	9	2	III		
bend	5	2	III	III	
benefit	13	3	III	III	
berry	10	2	III		C
berth	11	3	III	IV	
bet	7		II		
betimes	2		III		
beyond	6	3	III		
bicycle	2	3	IV	IV	
bid	8	2	III		
bind	9	2	III	IV	C
bird	5	2	III	IV	
birth	2	2		III	C
biscuit	8	3	III		
blank	4	1	IV	IV	
blanket	6	1	III	IV	
blaze	2	2	III		
bleed	2	2		III	
bless	8	2	III	IV	C
blind	3	2	III		C
blister	3	2	III	IV	
bloody	2		IV	IV	
bloom	4	2	III		
blossom	6	3	III		
blot	5	1	III	IV	
blouse	4	3	III	IV	
bluff	7	1	III	IV	
blush	5	2	III	IV	
boarder	6		III	III	
boat	20	3	III	III	C
boil	15	2	II	IV	C
bone	6	2	III	III	
bonnet	2	3	III		
bookcase	5	1	III	III	
border	3	3	IV	IV	
borrow	13	3	III	III	
boss	6	2	IV	II	

I	II	III	IV	V	VI
bother	17	1	II	IV	
bow	5	3	III	IV	
bowel	11		III		
bowl	3	3	III		
brace	2	2	IV	IV	
braid	5	3	III		
brain	5	3	III	II	
branch	2	2	IV	IV	
brand	2	2	IV	IV	
breast	2	2	III		
breath	3	3	III	IV	
breathe	11	3	III	III	
brick	9	2	III	III	C
bride	2	1	III		
bridge	10	2	III	III	C
bright	15	3	III	III	
brightly	2	1	IV	IV	
brilliant	2	3	IV	IV	
brisk	2	1	III		
broach	2	1	IV	IV	
bronchitis	6	2	III		
bruise	3	3	III	IV	
brush	8	2	III	IV	
bug	3	1	III	IV	
buggy	4	2	IV	III	
bugle	2	1	III		
bull	3	2	IV	IV	
bum	5		III	IV	
bump	2	1		III	
bunch	14	2	III	III	
bundle	7	2	III	IV	C
bungalow	7		III	IV	
burden	4	2	III	III	
burial	4	2	III		
burner	6		III		
burst	2	2	III		
bury	7	2	III		
bus	11		III	III	
bush	3	2	III		
bushel	9	3	II		C
bust	2		III		
button	19	2	III		C
cab	4	1	IV	IV	
cabbage	7	3	III		
cabin	4	3	III	IV	
cafeteria	14		III	IV	
calculation	2	1	IV	IV	
calendar	2	3	IV	IV	

I	II	III	IV	V	VI
caller	8		III		
camel	2	2	III		
camera	3	3	III	IV	
camp	10	2	III	IV	
camphor	3	2	III		
cancer	2	1	III		
candidate	5	3	IV	III	
candy	19	2	II	IV	
canoe	5	3	IV	IV	
canon	6	3	IV	IV	
canvas	2	3	III		
cap	11	2	III	IV	
capacity	6	3	IV	III	
cape	4	2	III		
capital	2	3	IV	IV	C
capitol	10	3	III	IV	
captain	4	3	IV	IV	
carbon	4	1	IV	IV	
carefully	4	1	III	IV	
careless	2	2	IV	IV	
carelessness	3		III		
carnation	3	2	III	IV	
carpenter	3	2	III		
carpet	4	2	III	IV	C
carriage	7	3	III		
cartoon	2	2	IV	IV	
cash	7	2	III	IV	
casserole	7		III		
cast	3	2	IV	III	
cat	4	2	III	IV	C
catalogue	3	2	IV	III	A
catarrh	4	2	III	IV	
cave	6	2	IV	IV	
ceiling	4	3	IV	III	C
celebrate	2	3	IV	IV	
celebration	2	1	IV	IV	
cellar	12	3	III	III	
cement	4	3	III	IV	
cemetery	4	3	III	IV	
center	7	2	IV	III	A
central	2	2	IV	IV	
chain	4	3	III		AC
chairman	2	2	IV	IV	
channel	4	2	III		
chapel	24	2	III	IV	
chaperon	12	1	IV	IV	
chapter	2	2	III		
character	4	3	IV	III	

I	II	III	IV	V	VI
charity	3	2	IV	IV	
charm	7	2	III	II	
chase	5	3	III	III	
chautauqua	17	1	III		
cheaply	2			III	
check	14	2	III		A
cheek	10	2	III	II	
cheerful	8	1	III	IV	
chest	2	1	IV	IV	
chief	2	2	IV	IV	
childhood	4	1	III	IV	
childish	2		IV	IV	
chill	7	3	II		
chilly	5	1	III	IV	
chimney	2	3	IV	IV	C
china	4	1	III	IV	
chip	2	1	III		
chocolate	3	3	III		
choice	9	2	III	II	
choir	18	3	IV	III	
choke	2	2	III		
choose	6	3	III	II	C
chore	9	1	III		
cigar	3	2	IV	IV	
circle	5	3	III	III	C
circular	4	2	III		
circumstance	5	2	III	III	
circus	10	3	III	IV	
cistern	12	3	III	III	
citizen	2	2		III	
civil	4	3		III	
claim	6	2	III	III	A
classical	2	1	III		
clause	2	2	III		
clerk	6	2	IV	IV	C
climate	10	2	III	IV	
climb	6	3	III	IV	
clip	15	1	III	II	
closely	2		IV	IV	
closet	20	3	II	IV	
cloud	5	2	IV	III	
cloudy	9	1	III	III	C
club	15	1	III	III	C
coach	8	1	III	IV	
coal	17	1	III	IV	C
coast	10	2	III	III	
collar	11	3	III	IV	
collect	6	2	III	IV	

I	II	III	IV	V	VI
collection	7	1	III	IV	
college	35	2	IV	II	
comb	11	3	III	IV	
combination	2	1		III	
combine	3	1	IV	III	
comedy	3	3	IV	IV	
comfortably	6		III	IV	
commence	8	2	III	IV	
commencement	10		III	III	
comment	4	2	III	IV	
commission	3	2	III	IV	
committee	4	3	III	IV	AC
communication	4	1	IV	III	
companion	3	1	III		
comparison	2	1	IV	IV	
complain	8	3	III	IV	
complete	9	3	III	II	C
completely	4		IV	IV	
compliment	4	3	III	III	
concert	4	2	III	IV	
conclude	9	2	III	IV	
conduct	10	2	III	III	
conductor	3	3	IV	IV	
confess	4	2	III	IV	
confidential	5		IV	III	
confine	3	2	IV	III	
congenial	3	2	IV	III	
congress	2	1	IV	IV	
connect	6	3	III		
connection	13	1	III	III	
consent	5	2	IV	III	
consequence	4	2	IV	III	
consequently	4		III		
consider	10	2	III	II	A
considerable	13	1	IV	III	
considerably	8	1	III	III	
consideration	3	2	IV	IV	
consist	6	1	III	III	
conspicuous	2	2	IV	IV	
constant	3	2	III	IV	
constantly	6		IV	III	
construct	2	1	IV	IV	
consult	2	2	IV	IV	
consumption	5	2	III	IV	
contain	8	3	III	III	A
contemplate	2	1		III	
contend	2	1	IV	IV	
content	14	2	III	III	

I	II	III	IV	V	VI
contest	16	2	IV	IV	
continually	6	1	III	III	
contract	13	2	III	II	
contrary	2	2	IV	IV	
contrast	2	2	IV	IV	
contribution	3	2	III		
control	4	3	IV	II	
convenient	3	2	III	IV	A
convention	8	2		II	
conversation	6	2	III	II	
convert	2	2	IV	IV	
convey	2	3	IV	IV	
conveyance	5	2	IV	IV	
convince	5	2	IV	II	
cooky	8	1	III		
corner	13	3	III	III	C
corporation	2	2		III	
correct	12	3	III	III	
corset	5	1	III		
cottage	5	3	III		
cotton	7	3	III		C
couch	13	3	III	III	
cough	28	3	III		
counter	4	2	IV	IV	
county	15	1	IV	II	
courage	3	3	IV	IV	C
court	17	3	III	III	
cousin	36	3	III	III	C
cow	4	2	IV	III	
cozy	2	3	III		
crack	4	2	III		
cracker	5	2	III		
cramp	6	1	III	IV	
cranberry	2	2	III		
crawl	2	2	IV	IV	
cream	22	3	II	IV	
create	2	2	III		
creature	2	3	IV	IV	
credit	7	2	III	III	
crestfallen	2		IV	IV	
critical	4	2	III	III	
criticize	4	2	IV	III	
crochet	2	2	III		
crocodile	3	1	IV	IV	
crop	8	2	III	III	
crow	2	2	III		
crowd	18	3	III	II	
crown	3	2	III	IV	

I	II	III	IV	V	VI
cruel	2	3	IV	IV	C
crutch	5	2	III	IV	
cry	60	2	III	IV	
cucumber	2	3	III		
cuff	3	1	III		
cultivate	5	2	III		
culture	3	2	III	IV	
cupboard	8	3	III	IV	
curly	6		IV	IV	
currant	2	3	III		
curtain	20	3	III	IV	
cushion	5	3	III	IV	
custard	13	3	III		
custom	7	3	IV	III	C
customary	2	2		III	
cute	13	1	III	IV	
daddy	20		III		
daily	13	3	III	II	C
dainty	2	3	III		
dairy	5	3	III	IV	
damage	6	3	III	IV	
damp	2	2	III		C
dancer	2		IV	IV	
dandy	5	1	III	III	
danger	9	3	IV	II	C
dangerous	3		IV	III	
dare	10	2	III	III	C
darkness	3	2	IV	III	
darling	42	1	III	IV	
darn	6	2	III	IV	
daytime	3		IV	IV	
dean	3	1	III		
debate	18	2	IV	III	
debt	4	3	IV	III	C
deceitful	2	1	IV	IV	
decent	6	2	III	IV	
decision	5	2	III	III	
deck	3	2	III	IV	
declamation	4	1	IV	IV	
declare	2	2	III		
decline	4	1	IV	IV	
decorate	3	3	IV	IV	
decoration	3	1	III	IV	
deed	2	2		III	
deep	10	2	III	II	C
deer	2	2	III		
defeat	6	1		II	C
definite	2	1		III	

I	II	III	IV	V	VI
definitely	5		IV	II	
delay	11	2	III	III	
delight	9	2	III	IV	
delightful	10	2	III	IV	
delightfully	2		III		
deliver	8	1	III	III	
delivery	7	1	III	II	
demonstrate	3	1	IV	IV	
dentist	21	2	III		C
deny	5	2		II	
depart	2	2	IV	IV	
department	4	3	III	IV	A
depend	5	2	III	IV	
deposit	5	3	III	III	
depot	34	3	III	III	
deprive	2		IV	IV	
descend	3	3		III	
describe	5	2	III	IV	
description	3	2	III		
descriptive	2	2	IV	IV	
desert	6	3	IV	III	
deserve	5	3	III	IV	C
design	2	2	IV	IV	
desirable	2	1	IV	IV	
desire	13	2	III	II	AC
desk	8	2	III	III	
desperately	2		IV	IV	
despondent	2	1		III	
dessert	3	3	III		
destination	2	1	IV	IV	
destitute	2	2	IV	IV	
destroy	2	2	IV	IV	
detail	6	2	III	III	
detain	3	3	III		
determine	11	2	III	III	
develop	2	3	III		A
development	2	2		III	
devil	8		III	III	
diamond	2	3	IV	IV	
dictionary	4	3	IV	IV	
diet	2	3	III		
difficulty	2	1		III	
dig	6	2	III	IV	
dine	17	2	III	IV	
diner	5		III	IV	
diploma	2	1	IV	IV	
direction	10	2	III	III	A
directly	6	1	IV	II	

I	II	III	IV	V	VI
dirt	16	2	III	IV	C
dirty	31		III	III	C
disagreeable	8	2	III	III	
disappear	2	3		III	
disappointment	4		IV	IV	
disaster	4	2	IV	IV	
discharge	2	1	IV	IV	C
discord	2	2		III	
discourage	7	2	III	IV	
discover	3	2	IV	III	
discuss	3	2		II	
discussion	2	1	IV	IV	
disease	7	3	III	IV	
disgrace	2	2	IV	IV	
disgust	4	2	III		
disjoint	2		IV	IV	
dislike	3	1	IV	IV	C
dismal	2	2	III		
dismiss	7	3		III	
dismissal	5	2		III	
display	2	2	IV	IV	
dispose	4	1	III		
disposition	2	2	III		
dispute	2	1		III	
distance	15	3	III	III	
distant	5	1	III	IV	
district	11	3	II	III	
disturb	3	3	IV	III	
ditch	5	2	III	III	
diversion	2	1	IV	IV	
dividend	4	2		III	
division	2	2		III	
dizzy	3	2	III		
dog	9	2	III	III	C
doll	11	2	III	IV	
dome	2	1	III		
domestic	4	2	IV	III	
donation	2	2	IV	IV	
dose	4	2	III	IV	
double	7	3	III	III	
doubtless	5	1	III	III	
dozen	25	3	III	II	C
draft	26	2	II	IV	
drag	3	1	IV	IV	
draw	17	2	III	II	C
drawer	24	3	III	IV	
drayage	2		III		
dread	7	2	III		

I	II	III	IV	V	VI
dreadful	7	2	III	IV	
dreadfully	4		III	IV	
dream	20	3	IV	III	
dresser	4	1	III	IV	C
dressmaker	3		III		
drift	4	2		II	
drink	16	2	III	III	C
driver	5		III		
drown	3	2	IV	III	
drug	2	1	IV	IV	
due	9	3	III	IV	
duet	2	1	IV	IV	
dull	4	2	IV	III	C
dusty	3	1	III	IV	
dwell	2	2	IV	IV	
ear	10	2	III	III	C
earn	8	2	IV	II	C
earnest	9	3	III	III	C
ease	2	3	IV	IV	
easily	14	1	III	III	
east	24	2	II	IV	C
eastern	6	3	IV	IV	
easy	19	3	III	III	
economical	3	1	IV	IV	
economize	3	1	III		
edge	4	2	III	IV	
edition	2	3	IV	IV	
educate	4	2	IV	IV	
education	12	3	IV	II	A
effort	16	2	IV	II	AC
egg	25	3	III	IV	
eighteen	18	1	III	III	
eighth	3	3	III	IV	
eighty	11	2	III	III	C
elaborate	3	1	III		
elbow	6	2	III	III	
elect	18	2	III	II	
election	7	2	III	II	
elope	2	2	IV	IV	
elsewhere	3		III		
embroider	3	3	III		
embroidery	4	2	III		
emergency	2	2	III		
employ	8	1	IV	III	
employee	11	2	III	IV	
employer	2	1	IV	IV	
employment	5	2	IV	III	
empty	4	3	III		

I	II	III	IV	V	VI
enable	2	1	IV	IV	
encourage	3	3	III	IV	
encouragement	3	1		III	
engage	8	2	III	IV	
engine	11	3	III	IV	C
engineer	10	1	III	III	
enjoyable	6	1	III	III	
enlarge	2	1	III		
enroll	3	2		III	
enrollment	2		IV	IV	
enter	10	2	III	III	
entertain	11	2	III	III	
enthusiasm	2	2		III	
entire	8	2	IV	III	
entirely	22	1	II	IV	
entitle	3	3	III	IV	A
envelop	19	2	II	IV	
envy	4	2	III		
epistle	3	1	IV	IV	
equally	3		IV	III	
erect	2	3	III		
errand	9	3	III		
error	4	3		III	
escape	4	2	III	IV	
escort	2	2	IV	IV	
especial	2	1	IV	IV	
essential	2	3	IV	IV	
establish	5	2	III	IV	
estimate	3	2	IV	IV	
eve	18		III		
event	6	2	III	III	
eventually	2		IV	IV	
everlasting	2		IV	IV	
everywhere	5	1	IV	IV	
evil	2	3		III	C
exact	5	3	IV	III	
exactly	8	1	III	IV	
examine	7	3	III	IV	
exceed	4	3	IV	IV	
excellent	9	3	III	II	
exceptionally	2		IV	IV	
exchange	2	2	III		
excitement	5	2	III	IV	
excursion	12	2	III	III	
exercise	25	3	III	II	
exhaust	3	3	III		
exhibit	3	2	IV	IV	
exhibition	2	3		III	

I	II	III	IV	V	VI
expectation	4	1	III	IV	
expensive	12	2	III	II	
expire	2	1	IV	IV	
explain	16	3	III	II	C
exposition	2	1	IV	IV	
exposure	2	1		III	
expression	2	1	IV	IV	
extend	4		III	IV	
extent	3	1	IV	III	
extreme	3	2	IV	III	
factory	20	2	III	III	A
faculty	14	1	III	II	
fade	5	3	III	IV	
failure	3	2	IV	IV	C
faint	2	2	III		
fairly	12	2	III	III	
faith	8	2	III	II	
faithful	3	2	IV	IV	
false	2	3		III	C
familiar	2	3		III	
famous	2	3	III		
fancy	9	2	III	III	
fare	20	3	III	II	
farm	15	2	III		C
farmer	5	2	III	IV	C
fascinate	2	1	IV	IV	
fashion	7	3	III	III	C
fasten	5	3	III	IV	
fault	17	3	III	III	
favor	8	2	IV	II	
favorable	4	2	IV	III	
favorably	2			III	
favorite	3	2	IV	IV	
fearful	7	3	IV	IV	
feast	2	3	IV	IV	
feat	3	2	IV	III	
feather	5	3	III	III	
feature	3	2		II	
fee	4	1	III	IV	
feed	10	2	III	III	
fellowship	2		IV	IV	
fence	8	3	III	IV	C
ferry	6	1	III	IV	
fever	29	3	III	IV	C
field	7	3	III	IV	C
fierce	8	3	III	IV	
fifth	5	2	III	IV	
fig	2	1	III		

I	II	III	IV	V	VI
figure	15	3	III	II	C
file	5	2	III	III	
fin	2	1	III		
final	6	2	IV	II	
finally	23	3	III	III	A
finance	4	2	III	IV	
financial	4	3	IV	III	
finger	9	2	III	IV	C
firecracker	3		III		
fireman	3		IV	IV	
firm	2	3	IV	IV	
fish	12	2	II		C
flannel	3	3	III		
flavor	2	3	III		
flight	3	3	IV	IV	
flour	3	3	III	IV	C
flower	14	3	III	IV	C
fly	24	3	III	IV	
foggy	6	2	III	IV	
fold	4	2	III		
foliage	4	2	III	IV	
fond	5	2	III		
food	16	2	II	IV	C
fool	16	1	III	IV	
foolish	20		IV	III	C
football	36	1	IV	III	
force	6	2	IV	II	C
foreign	4	3	IV	IV	
forever	6	1	IV	IV	
forgive	4	1	IV	IV	
fork	2	2	III		C
form	12	1	III	II	AC
formal	4	1	IV	IV	
fort	2		IV	IV	
fortunate	9	3	III	II	
fortune	5	3	III	III	
forty	28	3	III	III	C
forward	21	3	III	IV	A
foundation	8	1	III	II	C
fourteen	7	3	III	IV	
frame	12	2	III	II	
frank	4	2	IV	IV	
fraternity	3	1	IV	III	
freak	2	1	IV	IV	
freeze	6	3	III	III	C
freight	9	3	III	III	
frequent	2	3	III		
frequently	5		III	IV	

I	II	III	IV	V	VI
fresh	16	2	III	III	C
freshman	6	1	III	IV	
friendly	6	1	III	III	
friendship	2	2		III	
frighten	2	2	IV	IV	
frost	9	2	III	IV	
fruit	26	3	III	III	C
fry	12	1	III	IV	
fudge	15	1	IV	IV	
fully	8		III	III	A
function	2	2	IV	IV	
fund	2	1	IV	IV	
funeral	9	2	III	IV	
fur	7	3	III		
furnace	4	2	III	IV	C
furnish	18	1	III	II	
furniture	8	3	III		
fuss	4	1	III		
future	10	2	III	II	C
gain	8	3	III	III	
gallery	8	2	III		
gang	2	1	IV	IV	
garden	4	2	III	III	C
garment	4	2	IV	IV	
gas	6	2	III		C
gasoline	7	2	III		
gasp	2	1	III		
gay	6	1	III	IV	
gem	9	2	III		
generally	7	1	III	IV	
generous	2	2	III		
gentle	3	3	IV	IV	
gentleman	6	2	III	III	A
genuine	3	3	IV	IV	
geography	5	3		II	
geometry	16	1	IV	III	
gift	8	2	III	III	
giggle	2	1	III		
glance	3	2	IV	IV	
gloomy	8		III	IV	
glorious	3	2	III		
glory	2	2	IV	IV	
glove	6	2	III		
glue	3	3	III	IV	
gold	11	2	IV	III	AC
golden	7	2	IV	III	
goodby	59		II	IV	
goodness	7	1	II	IV	C

I	II	III	IV	V	VI
goodnight	38		III	III	
goody	3		IV	IV	
goose	5	2	III		
gorge	6	2	IV	IV	
gospel	3	2	IV	IV	
govern	2	1	III		C
government	3	3	III	IV	C
gown	17	1	III	IV	
grab	3	1	III	IV	
gradually	2		IV	IV	
graduate	5	1	III	IV	
grain	4	3	IV	IV	C
grandma	29	1	III	III	
grandmother	3	1	IV	IV	
grandpa	14		III	IV	
grandparent	2		III		
grant	3	2	IV	IV	
grape	13	2	III		
grass	18	2	III	III	C
grate	7	3	III		
grave	6		III	III	C
gravy	5	1	III		
gray	20	2	III	III	C
grease	2	3	III		C
greatly	12		III	II	
greet	4	2	III		
griddle	3	1	III		
grin	2	1	III		
grocer	2	3	III		
grocery	11	2	III		C
groom	2	1	III		
grove	2	2	IV	IV	
guard	5	3	III	IV	
guest	8	3	III	IV	
guide	11	2	III	IV	C
guild	4	1	IV	IV	
guilty	3	2		III	
gum	2	2	III		
gun	4	2	IV	III	
guy	4			III	
gymnasium	6	1	III	III	
gymnastic	2	1		III	
ha	14	1	III		
habit	10	3	III	III	
ham	2	1	III		
handkerchief	14	2	II	IV	
handle	6	3	III	II	C
handy	4		III		

I	II	III	IV	V	VI
happily	4	1	IV	III	
happiness	5	2	IV	III	C
hardship	2	2	IV	IV	
harm	2	2	III		
harmony	5	2		III	
harness	2	2	III		
harvest	3	2	III		
hash	3	1	III	IV	
haste	4	2	III	III	
hasten	2	1	IV	IV	
haul	4	3	IV	IV	
hay	6	2	III	III	
headache	24	1	II	IV	
heal	3	3	III		
healthy	5	1	III	IV	C
heap	4	2	III		
heartfelt	2		III		
hearty	3	1	III		
heaven	4	2	III	IV	C
heavily	6	1	III	IV	
heel	3	2	III	IV	
height	5	3	III	IV	C
hello	5		III	IV	
helper	3		III		
helpful	4	1	III	IV	C
hen	5	2	III	III	
hence	5	1	IV	III	
herald	2	1	IV	IV	
hereafter	3		IV	IV	
hesitate	3	2	IV	IV	
hide	10	2	III	II	C
highly	5	1	IV	IV	
hike	3		IV	IV	
hill	12	3	III	III	C
hilly	3		III		
hinge	2	2	III		
hint	2	2	IV	IV	
hire	14	2	III	III	
history	18	3	III	II	
hit	9	1	III	II	
hoarse	3	3	IV	IV	
hog	5	1	IV	III	C
holder	2		IV	IV	
holiday	19	3	III	IV	
hollow	2	2	III		C
holy	3	3	IV	III	
homelike	3		III		
homely	4	1	IV	IV	

I	II	III	IV	V	VI
homesick	8		III	IV	
honest	10	3	IV	IV	
honestly	2		IV	IV	
honey	3	3	III	IV	
honor	3	2		III	A
hood	2	2	III		
hook	5	1	III	IV	
hop	2	2	IV	IV	
hopeful	3	2		III	
horn	5	1	III	IV	
horrible	7	2	IV	III	
horrid	3	2	III		
horseback	3		IV	IV	
hose	3	2	IV	IV	
hospitable	2	1	IV	IV	
hospital	16	3	II		A
household	7	2	III	III	
housekeeper	4		III		
housekeeping	6		III	IV	
housework	3		III		
hug	31	1	III	III	
huge	2	2	IV	IV	
human	6	2	IV	II	
humble	3	2	III	IV	
hundred	17	3	III	III	C
hungry	8	2	III	IV	C
hunt	12	2	II	IV	
husband	25	2	III	III	C
hustle	10	2	III	IV	
hymn	5	3	III	IV	
hysterics	4	1	III		
ice	20	2	III	IV	C
icy	2	2	IV	IV	
ideal	2	1		III	
identify	2	1	III		
ignoramus	4	1	IV	IV	
ill	8	2	III	III	AC
illness	7	1	III	III	
imitate	3	2	IV	IV	
immediately	7	1	III	IV	
immense	4	3	IV	IV	
immensely	5		IV	III	
impatient	2	2	IV	IV	
importance	6	1	III	III	A
important	6	2	III	III	
impose	4	2	III	IV	
impress	6	2	IV	II	
impression	5	2	III	III	

I	II	III	IV	V	VI
impressive	2	2	IV	IV	
improvement	4	2	III		
inaugurate	3	2		III	
inch	9	2	III	IV	C
incidentally	5		III	III	
include	18	2	III	III	
inconvenience	4		IV	II	
increase	11	3	IV	II	
indeed	12	2	III	II	
indefinitely	2			III	
indescribable	2		IV	IV	
indigestion	2	1	III		
indigo	2	1	III		
individual	5	2	III	IV	
industrious	4	1	IV	IV	
industry	2	3	III		C
influence	9	3	III	II	
inform	7	1	III	IV	A
informal	3	1	IV	IV	
information	4	2	III	IV	AC
injure	2	2	IV	IV	
injury	4	1		II	
ink	5	2	III		
innocent	2	3	IV	IV	
inquire	10	3	III	III	
inspect	2	1	IV	IV	A
inspiration	2	1		III	
install	2	2	IV	IV	
instance	6	2		II	
instant	2	3		III	
institute	21	1	III	IV	
instruct	2	2		III	
insult	2	1	IV	IV	
insurance	16	2	III	IV	
insure	4	2	IV	III	
intention	2	2		III	
intermission	2	1		III	
interrupt	5	2	III		
interruption	5		IV	IV	
intimate	5	3	III	IV	
introduce	3	3	IV	III	
introduction	3	2	IV	IV	
intrude	3	2		III	
invalid	3	3	IV	IV	
investment	2	1		III	
invitation	14	3	III	III	
iris	2		III		
itch	2		III		

I	II	III	IV	V	VI
item	5	2	III	IV	
itself	4	1	III	III	
jam	2	2	III		
janitor	17	3	III	III	
jar	2	1	IV	IV	
jaw	10	1	IV	IV	
jealous	13	3	III	IV	
jelly	14	3	II		
jewel	2	3	III		C
joke	8	2	III	III	
jolly	4	3	III	IV	
journey	9	3	III	III	
joy	2	2	IV	IV	C
judge	17	3	III	IV	C
judgment	9	3	III	III	C
juice	5	3	III		C
jump	11	2	II	IV	
junior	12	3	III	II	
junk	2	1	IV	IV	
justice	6	2	IV	III	
justify	3	2	IV	III	
key	5	2	III	IV	
kick	4	3	IV	IV	
kidney	4	1	III		
kimono	5	1	III	IV	
kindly	7	1		II	A
kindergarten	6	1	IV	III	
kindness	3		III	IV	AC
king	4	2	III	IV	
kitten	3	2	III		
knee	11	3	III	IV	
knife	3	3	III		C
knock	8	3	III	III	
knowledge	4	3	IV	IV	C
kodak	4	2	IV	IV	
labor	8	3	III	III	A
lace	18	2	III	III	
lack	12	2	III	II	
lake	23	2	III	III	
lame	7	1	III		
lamp	4	2	III	IV	
landlady	6		III	III	
language	2	3	IV	IV	
lantern	3	3	IV	IV	
lap	16	2	III	IV	
lard	4	1	III		
largely	2		IV	IV	
laugh	75	3	III	IV	C

I	II	III	IV	V	VI
launch	3	2	III		
launder	3	3	III		
laundry	6	3	III	IV	
law	15	2	II	IV	C
lawn	9	3	III	III	
lawyer	3	3	IV	III	C
lay	40	2	III	III	C
layer	4	1	III	IV	
lazy	8	2	III	IV	C
lead	13	3	III	II	A
leader	3	2	IV	III	
leaf	9	2	III	IV	
league	54	2	IV	IV	
lean	4	2	III	IV	
lease	6	2	III	IV	
leather	6	3	III	IV	C
lecture	22	3	III	III	
leg	13	2	III	II	C
legging	4	1	III		
legislature	2	2		III	
lemon	4	3	III	IV	C
lemonade	4	3	III	IV	
length	13	3	III	II	C
lens	2	2	III		
level	5	3	III	III	C
lie	23	3	III	IV	C
lien	2	2	IV	IV	
lift	9	2	III	IV	C
lighten	2	1	IV	IV	
likely	33	1	III	II	
lily	2	3	IV	IV	
limb	4	2	III		
limit	14	3	III	III	
limp	2	2	III		
linen	2	3	III		C
lip	6	2	III	IV	
liquor	2	2	III		
list	12	2	III	III	A
literary	5	2	IV	IV	
literature	7	3	IV	II	
lively	6	2	III		
liver	2	1	III		
load	14	3	III		
loaf	3	3	IV	IV	
loan	5	3	III	IV	
local	5	2	IV	III	
locate	8	2	III	III	
location	8	1	III	IV	

I	II	III	IV	V	VI
lock	11	2	III	IV	
lodge	4	3	III	III	
logic	3	1	III		
lonely	8	2	III		
lonesome	14	2	III	III	
loop	3	2	III		
loose	5	3	III		C
loss	8	3	III	IV	
loud	2	3	III		
lovable	3	1	IV	IV	
lover	7		IV	III	C
lovingly	12		III	IV	
luck	5	2	III		C
lumber	2	2	IV	IV	
lump	2	2	III		
luncheon	7	3	III	IV	
lung	16	1	III	IV	C
luxury	6	3	III	III	
ma	97		III	IV	
mad	30	1	III	IV	
madam	3	1	III	IV	A
magazine	9	3	III	IV	
maid	5	3	III		
main	8	3	III	III	
majesty	2	2	III		
majority	6	2	IV	II	
male	3	2	IV	IV	
mama	176	1	III	II	
manager	2	1	IV	IV	
manly	3	1	IV	IV	
manner	10	3	III	IV	C
manufacture	4	3	III	IV	
marble	3	3	IV	IV	
march	2	1	III		
mark	10	2	IV	III	AC
marriage	2	2	IV	IV	C
marry	81	1	III	III	C
mash	2	2	III		
mason	4	1	IV	III	
masonic	3	1	IV	IV	
mass	3	2	III		
master	7	2	III	II	C
mat	5	2	III		
match	6	2	III	IV	C
mathematics	2	2	IV	IV	
matron	7	2	III		
mattress	7	3	III		
meantime	2		III		

I	II	III	IV	V	VI
measure	8	3	III	III	AC
meat	19	3	III	III	C
medical	3	2	III	IV	A
medicine	24	3	II	IV	C
melt	8	2	III	IV	
member	29	2	IV	II	A
memorial	4		III		
memory	7	3	III	III	C
mend	38	2	III		
mercy	3	2	IV	IV	C
merely	6	1	III	II	
merry	6	3	III		
mess	7	1	III	IV	
message	3	2	III		
method	4	2		II	
mid	19	2	III	III	
middle	20	3	III	IV	C
mild	2	2	IV	IV	
milk	14	2	II		C
million	4	1	III	III	C
mince	4	1	III	IV	
miner	3	1	III	IV	
minimum	2	2	IV	IV	
minister	20	3	III	IV	C
minus	2	1		III	
miserable	7	2	III	IV	
mislead	2		IV	IV	
missionary	5	2	III		
misspell	2	2	IV	IV	
mistake	22	3	III	III	C
misunderstand	4		IV	IV	
mitten	6	3	III		
mix	11	1	III	IV	C
mixture	3	3	III	IV	
mob	3		IV	IV	
mock	2	2	III		
modern	6	3	III	IV	
mohair	2	1	III		
monkey	2	3	IV	IV	
monthly	5		III	IV	
moon	4	2	III	IV	C
moonlight	2	2	IV	IV	
moose	2	1	III		
mop	4	1	III		
moral	2	2	IV	IV	
mortgage	2	3	IV	IV	
mostly	6	1	III	IV	
moth	3	1	III		

I	II	III	IV	V	VI
motion	6	3	III	IV	
motor	7	3	IV	IV	
mountain	25	3	III	IV	C
mouse	5	2	III		C
mouth	17	2	III	IV	
movement	3	1	III	IV	
mud	10	1	III	II	
murder	3	2	IV	IV	C
muscle	3	3	III	IV	
muscular	3	2	III		
museum	10	3	III		
musical	8	1	III	III	
muslin	4	3	III	IV	
muss	3	1	III		
mutilate	3	2	III		
mystery	2	2	III		
nail	4	2	III	IV	C
nap	22	1	III		
napkin	4	3	III		
narrow	7	2	III	III	C
national	9	3	III	III	
native	2	2	IV	IV	
natural	10	3	III	III	
naturally	7	1		II	
naughty	4	3	III		
navy	2	1	IV	IV	
nearby	18		III		
neat	4	1	III		C
necessity	2	3	IV	IV	
necktie	3	1	IV	IV	
neglect	2	2	IV	IV	
negro	3	2	IV	IV	
neighbor	17	3	II	IV	
neighborhood	2	1	III		
neighborly	2		III		
nephew	2	3	IV	IV	
nervous	11	2	II	IV	
newspaper	17	2	III	IV	C
nicely	19		III	III	
nightgown	6		III		
nineteen	8	3	III	IV	
ninety	13	2	III	IV	C
ninth	7	1	III	IV	
nod	3		III	IV	
noisy	5		III		
nonsense	3	2	IV	IV	
nor	18	1	III	III	
normal	10	1	III	III	

I	II	III	IV	V	VI
nose	37	2	II	IV	C
noticeably	2			III	
notify	2	3		III	
notion	6	2	III	III	
notwithstanding	3		III		
nurse	6	3	II		C
nut	4	2	IV	IV	C
oatmeal	3	1	IV	IV	C
object	12	2	III	IV	
objection	4	3	III	IV	
obligate	5	1	IV	IV	
oblige	4	3	III		AC
observation	8	1	IV	III	
observe	5	2	III	III	
occasion	7	3	IV	III	
occasionally	4	1	III	III	
occupant	3	2	III		
occupy	11	3	III	II	
occur	8	3		III	
ocean	7	3	III	III	C
odd	7	2	III	IV	
offend	4	2		II	C
officer	4	3	III	III	
official	6	1	IV	IV	
oil	17	3	III	IV	C
olive	3	2	III	IV	
omit	2	3	IV	IV	
onto	6		III		
opera	6	3	IV	II	
operation	8	1	III	III	
opinion	4	3	IV	III	
opportune	2	2	IV	IV	
opportunity	15	3	III	II	
oppose	5	2		III	
opposite	5	3	III	III	
opposition	4	2	IV	IV	
orange	19	2	II	IV	C
orchard	5	3	III	IV	
ordinary	3	3	IV	IV	
organ	7	3	IV	III	
organize	4	2	IV	IV	
original	2	3	IV	IV	
outcome	4	1	IV	IV	
outfit	3		IV	III	
outlook	2		IV	IV	
outrage	3	1		III	
oven	4	3	III		
overalls	6	1	III	IV	

I	II	III	IV	V	VI
overcoat	5	1	IV	III	
overdo	5		III		
overflow	2	1	III		
overhaul	2		III		
overlook	5	1	III	III	
overturn	2		IV	IV	
oyster	4	3	III		
pad	3	1	III		
paddle	2	3		III	
page	6	2	III	IV	
pail	7	3	III		
pain	22	3	III	III	C
pair	30	2	III	IV	A
pale	2	3	III		
palm	2	3	IV	IV	
pan	13	2	II	IV	
pancake	5		IV	IV	
panel	2	2	IV	IV	A
pant	7	1	IV	IV	
pantry	4	3	IV	IV	
papa	66	1	III	III	
parade	4	3	III	IV	
parcel	4	3	III		
pardon	2	3	IV	IV	
parent	4	3	IV	III	C
partially	3		III	IV	
particular	14	2	III	II	AC
particularly	14	1	III	II	
partly	7	1	III	IV	C
passenger	8	3	III	IV	
patch	3	3	III		
patent	2	1	IV	IV	
path	3	2	IV	IV	
patience	2	3	IV	IV	
patient	7	3	III	IV	
patron	2	2	IV	IV	
patronize	6	1	III	III	
pattern	22	3	III		
pave	5	1	III	IV	
pavement	2	3	III		
payable	2	2	IV	IV	
payment	6	2	IV	IV	
pea	2	2	III		
peace	5	3	III	II	C
peaceful	2		IV	IV	
peach	9	3	III	IV	C
peak	3	3	IV	IV	
peanut	2	3	III		

I	II	III	IV	V	VI
pear	4	3	III		C
peck	6	2	III		
peculiar	3	2	III	IV	C
peep	2	2	III		
peer	2	3	III		
peg	2	1	IV	IV	
pencil	5	3	III		
penny	5	2	III	III	
pepper	2	3	IV	IV	
perfect	15	3	II	IV	C
perfectly	28	1	III	III	
perform	2	2	IV	IV	
performance	4	2	IV	IV	
period	5	3	III	IV	C
peritonitis	2	1	IV	IV	
permanent	3	3	III	IV	
permission	9	1	III	III	
permit	7	2	IV	II	
persimmon	2	1	IV	IV	
personal	3	3		III	A
personality	3	1		II	
personally	4			III	
persuade	6	3	III	III	
pet	2	2		III	
petition	2	2	IV	IV	
philosophy	2	1	III		
phone	20		II	IV	
photo	3		IV	IV	
photographer	2	1	III		
physic	3	1	IV	IV	
physical	6	1	IV	IV	
physically	2		IV	IV	
physiology	3	2		III	
pickle	8	3	III	IV	
picnic	11	3	III	IV	
picturesque	2	3	III		
pig	2	2	IV	IV	C
pile	11	2	III	III	
pink	27	1	III	III	C
pint	4	2	III		
pipe	6	2	III		C
pitch	2	2	IV	IV	
pitcher	2	2	IV	IV	
pity	6	3	III	III	
plaid	3	3	III		
plain	14	3	III	III	AC
plainly	5	1	III	III	
plait	7	1	III		

I	II	III	IV	V	VI
plant	13	3	III	III	C
plaster	6	2	III	III	C
plate	10	2	II	IV	
platform	2	2	IV	IV	
player	4	1	III	IV	
pleasantly	3	1	IV	III	
pleasure	29	3	III	II	AC
pledge	2	3		III	
plum	11	3	III		
plush	3	1	III		
pocket	10	3	III	IV	C
pocketbook	4		IV	IV	
poem	2	3	IV	IV	
poetry	11	3	IV	IV	
poison	6	3	III	IV	
policy	8	2	IV	IV	
polish	3	3	IV	IV	
political	4	2	IV	III	
pond	3	2	III		
poorly	7		III	III	
popular	8	3	III	IV	
population	2	2	IV	IV	
pork	7	1	III		C
porter	6	1	III	IV	
portière	2	1	III		
portion	3	2		III	
pose	2	1	IV	IV	
position	8	3	III	II	A
positively	4		III	IV	
possibility	4	1	III	IV	
possibly	17		III	III	C
postage	6	3	III		
postal	22	1	III	III	
poster	2	1	IV	IV	
postman	3		IV	IV	
postpone	4	2	IV	III	
pound	27	3	II		C
pour	3	3	III		
practically	8		III	III	
practise	27	3	IV	I	
prairie	2	3	IV	IV	
pray	3	3	IV	IV	
prayer	16	3	III	IV	
preach	14	3	III	IV	C
preacher	9		III	IV	
precinct	2	2	IV	IV	
precious	3	3	III		
prefer	9	3	IV	II	A

I	II	III	IV	V	VI
prejudice	2	3	IV	IV	
preliminary	6	1	IV	IV	
preparation	6	3	IV	IV	
preparatory	3		IV	III	
prescription	3	2	III		
presence	3	1	III	IV	
preserve	4	3	IV	III	
preside	4	1		III	
president	11	3	III	II	A
presidential	2			III	
press	15	2	III	III	C
presumably	2		III		
presume	12	1	III		
pretend	4	2	IV	III	
prevent	7	2	III	IV	
previous	5	2	III	IV	
previously	2			III	
pride	5	2	III	IV	
primary	7	2	III	II	
principal	9	3	III	II	
print	4	2	IV	IV	AC
private	10	3	III	II	AC
privilege	6	3	III	IV	
prize	14	2	III	III	
probable	5	1		III	
problem	8	2	III	II	
proceed	3	3		III	
prod	2		IV	IV	
produce	3	2		III	
professional	2	1		III	
profit	2	3	III		
program	18	2	III	II	
progressive	3	2	III		
promenade	5	1	III	IV	
promptly	2	2	IV	IV	
pronounce	3	2	III		
proper	9	3	III	IV	
properly	5	1	IV	III	
property	4	2	III	IV	C
propitious	2	2		III	
proportion	2	1	IV	IV	
propose	2	2		III	
proposition	8	2	IV	III	
prospect	4	2	IV	IV	
protect	2	2	IV	IV	
proud	14	2	III	IV	
prove	13	3	III	III	
provide	6	2	III	IV	

I	II	III	IV	V	VI
provoke	2	2	IV	IV	
public	11	2	IV	II	A
publish	2	2		III	A
pudding	14	2	III		
puff	4	2	III		
pug	2	1	IV	IV	
pullman	10		IV	III	
pulse	6	2	III		
pump	9	2	III	II	
pumpkin	2	3	III		
punish	2	2	IV	IV	
pupil	18	3	III	III	
purchase	6	2	III	II	
pure	4	2	IV	IV	C
purpose	4	3	IV	III	
push	2	2	III		
puzzle	4	3	III	IV	
quarrel	9	3	III	IV	
quart	19	2	III		C
quartet	4	3	IV	IV	
queen	6	3	IV	III	
queer	7	3	IV	III	C
quest	2	1	IV	IV	
quickly	3	1	IV	IV	
quietly	5	1	III		
quilt	5	2	III		
quinine	3	1	IV	IV	
race	5	2	III	III	
rack	7	1	III	IV	
radiator	2	2	III		
rag	13	1	III	III	
rail	4	1	III	IV	
railroad	7	3	III	II	C
railway	2		IV	IV	
rainy	16	2	II	IV	
raisin	3	3	IV	III	
rake	5	1	III		
rally	3	1	IV	IV	
ranch	7	2	III		
range	11	2	III	III	
rapid	4	2	IV	IV	
rapidly	8	1	III	III	
rate	17	2	III	II	
ravine	2	2	IV	IV	
raw	2	2	IV	IV	
razor	5	2	IV	IV	
readiness	3		III		
rear	2	1	IV	IV	

I	II	III	IV	V	VI
reasonable	8	3	III	III	
receipt	8	3	III	IV	AC
recent	2	2	IV	IV	A
recently	8		III	III	
reception	8	2	III	III	
recess	7	3		III	
recital	2	1	IV	IV	
recognize	3	2	III	IV	
recollect	2	3	IV	IV	
recommend	3	3	IV	IV	A
recommendation	4	1	III	IV	
record	7	2	III	II	
recover	6	1	III	III	
reduce	4	1	III	IV	
refer	6	2	IV	II	A
reference	5	2		III	
refit	2		III		
refreshment	5	1	III	IV	
refund	2	1	IV	IV	
refuse	8	2	III	IV	
regain	2	1		III	
register	10	2	III	III	
regret	4	2	III	IV	
regular	26	1	III	III	
regularly	7		III	IV	
rejoice	2	3	IV	IV	
relate	4	1	III	III	
relation	6	1	III	IV	
relative	6	3	III	IV	A
release	2	3	IV	IV	
relief	5	2	III		
relieve	19	3	III	III	
religious	4	3		III	
relish	2	1	IV	IV	
remainder	2	2	IV	IV	
remark	7	1	III	III	
remedy	5	3	III	IV	
remembrance	3		III	IV	
remind	9	1	III	II	
remodel	3		III		
remove	5	2	III	III	
renew	2	2	IV	IV	
renter	2		III		
repair	6	3	IV	IV	
repay	3	2	IV	III	
repeat	4	2	III	IV	C
repetition	2	2	IV	IV	
reply	14	2	IV	II	AC

I	II	III	IV	V	VI
represent	6	2	III	IV	
representative	3	1		III	A
republican	3	1	IV	IV	
require	5	2	III	II	
reset	4		IV	IV	
residence	6	3	IV	III	
resident	2	2	III		
resign	11	2	III	III	
resort	2	1	IV	IV	
respect	12	1	III	III	
respectable	4	2	III		
responsibility	7	1	III	IV	
restaurant	17	2	III	III	
restful	2		III		
restless	7		III	IV	
result	12	2	IV	III	
retire	5	1	III	III	
reunion	9	1	III	IV	
reverend	5	2	III	IV	
reverse	4	1		III	
review	6	3	IV	III	
rheumatic	5	1	III	IV	
rheumatism	19	2	III	IV	
ribbon	9	2	III	IV	
rice	5	2	III	IV	
rid	4	1	IV	III	
rig	3	1	III		
rip	6	1	III		
rise	11	3	III	II	
river	12	2	III	IV	C
roar	5	3	III	IV	
roast	6	3	III	III	
rob	3	1	IV	IV	
rocky	2	1	IV	IV	
roller	2	2	IV	IV	
roomer	3		III		
root	3	3	III	IV	
rope	4	2	III		
rose	6	2	III	IV	
rosy	2	2	III		
rough	12	3	III	II	C
round	20	2	III	III	C
route	8	3	III	IV	
row	12	2	III	II	
royal	7	3	IV	III	
rub	13	2	II	IV	
rubber	5	2	III		C
ruffle	7	2	III		

I	II	III	IV	V	VI
rug	21	1	III	IV	
ruin	2	3	IV	IV	
rule	9	2	III	II	
runner	6		IV	IV	
rush	13	2	III	III	
sack	2	2	III		
sacred	2	3	IV	IV	
sacrifice	2	3	IV	IV	
sad	7	2	III	III	
sadly	2			III	
safely	8	1	III	IV	
sail	17	3	III		
sailor	4	2	III		
saint	2	2	IV	IV	
sake	11	2	III	IV	
salad	9	3	III	IV	
salary	14	3	III	II	A
sale	9	3	III		
salesman	3	1	IV	IV	
salt	17	2	III	IV	
sample	4	2	III		
sand	3	2	III	IV	
sandwich	4	2	III	III	
sanitary	4	1	III	IV	
sarcastic	2	1		III	
sash	3	2	III		
satin	7	2	III		
satisfaction	5	2	III	IV	
satisfactory	11	2	III		
sauce	12	3	III		
saucer	4	3	III		
scale	3	3	IV	III	
scalp	3	2	IV	IV	
scant	2		III		
scar	3	2	III	IV	
scarce	3	2	III	IV	
scarcely	14	1	III	II	
scarlet	3	3	III	IV	
scatter	3	3	III	IV	
scenery	9	2	III	IV	
schedule	4	3	IV	III	
scholar	9	3	IV	IV	
scholarship	2		IV	IV	
science	7	2	IV	III	
scissors	3	3	III		
scold	9	2	IV	IV	
scorch	2	3	IV	IV	
scorcher	2		IV	IV	

I	II	III	IV	V	VI
score	12	2	III	II	
scout	4	1	IV	IV	
scramble	3	1	III		
scrap	6	3	III	IV	
scrape	2	3	IV	IV	
scraper	2		IV	IV	
scratch	2	3	IV	IV	
scream	4	2	III		
screen	4	3	IV	IV	
scribble	3	2	III	IV	
scrub	10	2	III		C
sea	15	3	III	II	
seal	6	2	III	IV	
search	2	2	IV	IV	C
season	23	3	III	II	
secret	6	2	III	IV	C
secretary	4	3	III	IV	A
section	11	1	III	III	
secure	12	2	III	III	AC
seed	2	3	IV	IV	
seek	3	3	IV	IV	
seldom	7	2	III	IV	
self	6	1	III	IV	
senior	9	2	IV	III	
sense	9	3	III	III	C
sentence	3	3	III		
separate	8	3	III	IV	A
separately	5		III	IV	
serious	13	3	III	II	
sermon	17	2	III	IV	
session	4	2	IV	IV	
seventeen	6	1	III	IV	
seventh	2	1		III	
severe	6	2	III	IV	C
shade	21	2	III	III	
shadow	6	3		II	C
shake	14	2	III	IV	C
shamefully	2		IV	IV	
shape	23	2	III	III	
share	7	2	III	IV	C
sharp	8	2	III	IV	C
shave	4	1	IV	IV	
shed	2	1	IV	IV	
sheet	19	2	III	III	
shelf	3	3	III	IV	
shell	2	2	III		
shine	13	3	III	III	C
ship	12	2	III	III	C

I	II	III	IV	V	VI
shirt	34	1	II	IV	C
shock	8	2	III	III	
shoe	32	3	II	IV	C
shoot	5	2	III		
shore	7	3	III	IV	
shortly	10	1	III	II	
shoulder	12	3	III	III	C
shout	2	2	III		
shove	3	3	III	IV	
shower	12	2	III	III	
shrink	2	2	III		
shudder	2	1	IV	IV	
shut	4	2	III	IV	
sickness	10		III	IV	C
sideboard	2	1	III		
sidewalk	3		III		
sightseeing	10		IV	IV	
signature	2	2	IV	IV	A
silent	2	2	IV	IV	
silly	17	1	III	IV	
silver	12	2	III	IV	AC
silverware	2		III		
similar	5	3	III	III	
simple	5	2	III	III	
simply	11	1	III	IV	
sin	2	1	IV	IV	C
sing	31	2	III	IV	C
single	10	3	III	III	C
sink	6	2	III		
sir	10	2	III	IV	A
sirup	7	3	III		
situate	5		IV	IV	
sixteen	13	1	III	II	
sixth	2	2	IV	IV	
skate	4	1	IV	IV	
skim	3	2	III		
skimp	2		III		
skin	11	1	III	III	
skip	2	2	IV	IV	
sky	3	2	IV	IV	C
slap	3	2	IV	IV	
slave	2	2	IV	IV	
sleeper	5		III	IV	
sleepy	16	1	III	III	
sleet	2	1	III		
sleeve	24	2	II	IV	C
sleigh	7	3	III	IV	
slice	6	2	III		

I	II	III	IV	V	VI
slick	3	1	III		
slide	7	2	III	IV	A
slight	7	2	III	II	
slightly	2	1	IV	IV	
sling	2	2	IV	IV	
slip	15	2	III	IV	
slipper	12	1	III	III	
slow	8	2	III	III	
slowly	3	1	IV	IV	
slumber	2	2		III	
smart	16	1	III	III	
smell	6	2	III	IV	C
smile	5	2	III	IV	C
smooth	4	3	III		C
snake	2	2	IV	IV	
snap	3	1	III	IV	
sneeze	9	3	III	IV	
soak	5	3	III	IV	
soap	7	2	III	IV	AC
sober	2	2	IV	IV	
sociable	2	1		III	
social	26	3	III	II	
socialist	3	1	III		
society	14	3	III	III	
sock	7	1	III	IV	
soda	2	1	III		
sofa	7	2	III	IV	
soft	17	2	II	IV	C
soil	5	3	III	IV	C
soldier	6	3	IV	III	
sole	8	3	IV	IV	C
solid	2	2	IV	IV	C
solo	2	1	IV	IV	
solution	2	2	IV	IV	
solve	4	2		III	
somebody	8	2	IV	IV	
somehow	3		IV	IV	
somewhat	18		III	III	
somewhere	11		III		
song	25	2	III	III	AC
soreness	5		III	IV	
sorrow	4	2	IV	III	C
soul	17	3	III	IV	C
soup	11	3	III		C
sour	2	3	III		
source	2	3		III	
southern	13	2	III	III	
space	4	2	III	IV	C

I	II	III	IV	V	VI
span	2	1	III		
spare	14	1	III	III	
speaker	6	2	IV	III	
specialist	2		III		
speech	6	3	III	III	
spick	2		III		
spirit	8	2	IV	III	C
spit	4	1	III	IV	
spite	5	1	IV	III	
splendid	6	1	III	III	A
spoon	5	3	III		C
sport	7	2	IV	IV	
spout	2	2		III	
spread	15	3	III	III	C
sprinkle	12	2	III		
squabble	2	1	IV	IV	
square	33	2	III	III	C
squarely	2			III	
squeeze	11	3	III	IV	
stable	4	3	III	IV	
stack	3	2	III	IV	
stag	4	1	IV	IV	
stage	3	1	III	IV	
stain	2	3	III		
stalk	2	3	IV	IV	
stamp	9	2	III		A
standard	7	2	IV	II	
star	7	2	IV	III	C
starve	4	3	III		
statement	5	2	IV	III	A
station	24	2	III	IV	
stationery	2	3		III	
statistics	2	2	III		
steadily	4	2	III	IV	
steady	2	2	IV	IV	C
steak	13	3	III	IV	
steal	4	2	III	IV	C
steam	6	2	III	IV	C
steamer	15	1	IV	IV	
steel	2	2	III		C
steep	3	3	IV	IV	
stenographer	3			III	
stew	5	2	III		
stiff	4	2	III	IV	
sting	3	2	III	IV	
stingy	4	3	III	IV	
stir	5	2	III		
stitch	6	3	III		

I	II	III	IV	V	VI
stomach	23	8	II	IV	
stone	9	2	III	III	
stool	3	2	III	IV	
stoop	3	3	III		
storage	5	1	III		
storm	15	2	III	III	C
stormy	3		IV	IV	
straight	15	2	III	II	C
straighten	9		III	IV	
strain	8	3	III	II	
strange	25	3	III	II	
strap	3	2	III	IV	
straw	9	2	III	IV	C
streak	2	3	IV	IV	
strength	6	2	II	IV	
strenuous	6	2	III		
stretch	3	2	III	IV	
string	9	2	III	IV	C
strip	3	2	III		
stroll	6	2	III	IV	
strongly	4	1	III	IV	
struggle	4	2		III	
stubborn	2	3	IV	IV	
stump	3	1	IV	IV	
stunt	7	1	IV	III	
stupid	3	3	III		
stylish	6		III		
subject	16	2	III	III	AC
submit	3	2		III	
substantial	2	2	IV	IV	
substitute	3	2	IV	IV	
suburb	3	2	IV	III	
succeed	15	2	III	III	C
successful	11		IV	II	
succession	2	1	III		
sudden	6	1	III	IV	
suddenly	3	1	III		
suffer	20	3	III	III	C
sufficient	3	2		II	
sufficiently	4		III	III	
sugar	8	3	III	IV	
suggestion	3	2	IV	III	
suite	2	2	III		
sum	4	2	IV	IV	
sunny	5	1	III		
sunshine	8	1	III	II	
superintendent	9	2	IV	III	
superior	6	2	IV	IV	

I	II	III	IV	V	VI
supplement	2	2	IV	IV	
supply	4	2	III	IV	A
support	2	3		III	
surely	38	1	II	IV	
surround	4	3	III	IV	
suspect	4	2	IV	II	
swallow	3	3	IV	III	
sweat	14	2	III	III	C
sweater	7	2	III	IV	
sweep	24	2	II	IV	C
sweeper	2		III		
sweetness	3	1	IV	IV	
swell	16	3	II	IV	
swim	6	2	IV	IV	
swing	10	2	III	III	
swipe	2		IV	IV	
switch	4	3	III	IV	
sympathize	2	1	IV	IV	
sympathy	7	3	III	III	
system	9	3	III	III	
tabernacle	3	1	IV	IV	
tablet	4	2	III	IV	
tack	3	1	III	IV	
tackle	3	1	IV	III	
tact	3	2	IV	III	
tag	2	1	IV	IV	
tail	7	3	II	IV	
tailor	3	3	III	IV	
talker	2		III		
tall	5	2	III	IV	
tan	16	2	III		
tank	3	1	III		
tape	4	2	III		
tart	2	2	III		
task	2	2	IV	IV	
tax	3	1	IV	IV	C
taxicab	3		III	IV	
tea	29	3	III	IV	
teakettle	2		III		
team	27	3	III	III	
teapot	5		III		
tear	17	3	III	III	
tease	3	3	III		
teaspoon	2		III		
telegram	14	2	III	IV	
telegraph	3	3	III		
telephone	15	2	III	III	
temperance	2	3	IV	IV	

I	II	III	IV	V	VI
temperature..........	5	2	III		
temple...............	8	2	III	IV	
tempt................	7	3	III	III	
temptation...........	5	2	IV	IV	
tend.................	3	2	IV	IV	
tendency.............	4	2	IV	III	
tender...............	5	2	III	IV	C
tenement.............	3	2	III	IV	
tennis...............	2	3	IV	IV	
tenor................	2	1		III	
tent.................	16	2	III		
tenth................	3	1	III	IV	
term.................	7	3		II	
terribly.............	8	2	III	III	
test.................	13	2	III	IV	
text.................	7	2	IV	III	
thankful.............	10	2	II	IV	C
thanksgiving.........	5	1	III	IV	
theater..............	10	3	III	IV	
themselves...........	12	1	III	II	
thereabouts..........	3		III		
therefore............	10	1	III	II	C
thermometer..........	3	2	IV	IV	
thirteen.............	8	3	III	III	
thorough.............	4	2	III		C
thousand.............	6	2	III	III	C
thread...............	2	3	III		C
thresh...............	2	2	III		
throat...............	14	3	III	III	C
throughout...........	2	2	IV	IV	
thumb................	4	3	III	IV	
thunder..............	6	2	III	IV	
thus.................	7	2	IV	II	
tickle...............	6	2	IV	III	
tidy.................	2	2	III		
tie..................	12	3	II	IV	
tile.................	10	2	III	IV	
timid................	2	2	III		
tinker...............	3	1	III		
tiny.................	3	3	III		
tip..................	5	2	III	IV	
tiresome.............	3		III		
toast................	6	3	III		
toilet...............	2	3	III		
tomato...............	9	3	II		
tombstone............	2		III		
ton..................	4	2	III	IV	C
tone.................	5	2	III	IV	

I	II	III	IV	V	VI
tongue	7	3	III	III	C
tool	2	2	IV	IV	
toot	14	1	IV	IV	
tooth	21	3	III	II	C
torture	2	3	IV	IV	
total	4	2	III	III	
touch	12	3	III	III	C
tour	3	1	III		
toward	18	3	III	II	AC
towel	14	3	III		C
tower	3	3	III	IV	
toy	3	2	III		
trace	2	2	IV	IV	
track	11	2	IV	III	C
trade	7	2	III	IV	
traffic	2	2	IV	IV	
tramp	2	2	III		
transfer	8	2	III	III	
travel	24	3	III	II	C
traveler	4	3	IV	IV	C
treatment	11	1	III	IV	
trial	11	3	III	III	C
tribe	2	2	IV	IV	
trick	4	2	III	IV	
trifle	6	3	III		
trim	9	2	III	III	
triumph	3	2	IV	IV	
trolley	5	3	III		
trot	2	2	IV	IV	
true	31	3	III	III	C
truly	8	2	IV	III	AC
trust	10	2		II	A
truth	13	2	III	III	C
tub	5	1	III		
tuck	4	2	III	IV	
tune	3	1	III	IV	
tunic	2	1	III		
turkey	10	3	III	IV	
twelfth	2	1	III		
twin	4	2	III		
twist	2	2	IV	IV	
type	3	2	IV	IV	
typewriter	5	1	III	III	
typhoid	4	2	III	IV	
ugly	3	2	III	IV	C
umbrella	5	3	III	IV	
unable	4	2	III	IV	AC
unanimous	2	2		III	

I	II	III	IV	V	VI
unbearable	2		III		
uncomfortable	8		III	III	
undershirt	3		III		
undertake	4	1	IV	III	
underwear	16		III	IV	C
undo	4		III	IV	
undress	7		III	IV	
uneasy	2	1	IV	IV	
unfinished	2	2	IV	IV	
union	17	3	III	IV	C
unlikely	2			III	
unload	3		III	IV	
unlock	2		III		
unnecessary	2		IV	IV	
unpack	4	1	III		
unpleasant	6		III	IV	
unreasonable	2		IV	IV	
unusual	5	1	III		
unusually	2		III		
unwise	2		IV	IV	
upset	3	1	III	IV	
urge	4	3	III	IV	C
urine	2		III		
useful	10	2	III	IV	C
useless	4		III	IV	
usually	17	1	III	III	
utter	2	3	III		
vacant	4	2	IV	IV	
vague	2	2	IV	IV	
valley	16	3	III	IV	C
valuable	4	3	III	IV	
value	7	3	IV	II	
variety	4	2	III	IV	
various	8	3	III	III	
varnish	2	2	IV	IV	
vary	4	3	III	IV	
vaudeville	2		IV	IV	
veal	3	2	III	IV	
vegetable	9	3	III		C
vegetation	2	2	IV	IV	
velvet	6	3	III	III	
ventilate	2	2	IV	IV	
ventilation	2	1	IV	IV	
verse	4	2	III	IV	
vessel	3	3	III		
vest	4	2	IV	IV	
via	3		III	IV	
vice	2	1	IV	IV	

I	II	III	IV	V	VI
victrola	2		IV	IV	
vigor	3	1	IV	IV	
vinegar	4	2	IV	IV	
violin	7	2		III	
visitor	8	2	III	III	
voice	11	2	III	III	C
volume	9	3	IV	III	A
vomit	7		III		
vote	25	2	III	II	C
wage	5	3		III	C
wagon	4	3	III		C
wake	15	1	III	III	C
waken	7		III	IV	
wander	5	3	III	IV	
war	7	1	III	III	C
warmly	3	1	III		
warn	5	1	III	IV	
wave	4	3	III	IV	
weak	17	3	III	IV	C
weakness	2			III	C
wealth	4	1	IV	III	
wealthy	3	2	IV	IV	
weave	2	3	IV	IV	
wed	16	1	III	III	
weed	2	3	III		
weekly	9	1	III		
weigh	31	3	III	IV	
weight	5	3	III		C
welcome	16	3	III	II	
western	7	2	III	III	
wet	16	2	III	IV	C
wheel	11	3	III	III	C
whenever	8	1	III	IV	
whereby	3		IV	III	
wherever	8	1	III	IV	
whimper	2	1	IV	IV	
whip	5	2	III	IV	
whiskers	3		IV	III	
whisper	4	2	IV	IV	
whistle	3	3	III		
whoever	3	1	IV	IV	
wholly	4	2	IV	III	
wide	7	2	III	IV	C
widow	4	1	III		C
width	4	3	III	IV	
wiggle	2		IV	IV	
wild	9	2	III	III	
windmill	2	1	III		

I	II	III	IV	V	VI
windy	7		III	IV	
wipe	5	2	III		
wire	8	2	III	III	
wireless	4		III		
wisdom	3	2	IV	IV	C
wise	9	2	III	IV	C
within	6	1	III	IV	C
wonderfully	5	1	III	IV	
wood	17	3	III	III	C
woodwork	2		IV	IV	
wool	4	3	III		
worthless	2		IV	IV	
worthy	6	2	III		
wrap	6	3	III	III	
wreck	3	3	III	IV	
wring	3	3	III	IV	
writer	2			III	
yeast	3	3	III		C
yell	8	1	III	IV	
yoke	9	2	III	IV	
youngster	6		III	III	
zero	3	1	III		

Lack of space forbids the presentation of List IV, but its general character is revealed by the statement that eighteen hundred four of its two thousand two hundred thirty words occur only once. This is thirty-four and sixty-nine hundredths per cent. of five thousand two hundred words, the total of the four lists. Ayres found the closely similar figure of thirty-seven and fifty-three hundredths per cent. for the proportion of vocabulary occurring but once.

Proper names in the correspondence

In the two hundred thousand running words thus tallied, a total of twelve hundred nine different proper names occurred, with a combined frequency of about nine thousand seven hundred forty.

In tallying proper names, terms which were identical in spelling except for a final *s,* such as *Steven* and *Stevens, William* and *Williams,* etc., were accounted a single word instead of two. All nicknames, pet diminutives, and spellings based on personal predilection were reduced to the standard orthography. The envelope addresses were considered as far as they came into the writers' hands, since nothing in the matter of correct spelling is more germane to efficiency than the address, as our Dead Letter Office shows. The inclusion of addresses, the relationship of certain correspondents to one another, and the much greater volume of correspondence from certain persons than from others, accounts for the unusual frequency of some names. The same plan of division into four lists, as outlined above, has been followed with the proper names, but the columns showing sex differences (IV and V) have been eliminated because they yield data so meager as to be non-significant. As presented below, Lists II and III have been purged of the following classes of names for an obvious reason: All towns of less than 10,000 inhabitants, all strictly local publications, organizations and streets; and all family names, except those of historic characters, or of men in the public eye. This elimination decreased List II only slightly, but reduced List III over a third.

LIST I

1 WORD

Saturday	199	3	A

LIST II

30 WORDS (33 WORDS BEFORE ELIMINATION)

August	49	3	A
Charles	184	1	
Chicago	85	2	
Christmas	133	3	A
December	34	3	A
Ella	112		
Fannie	15		
Friday	188	1	A
Hamilton	91		
Harry	28	1	
Hepsy	230		
Illinois	137	3	
January	36	2	A
July	20	2	A
June	27	2	A
Madison	169		
May	42	1	A
Miss	113		A
Monday	150	1	A
November	37	2	A
October	44	3	A
Ralph	124	1	
St. Paul	22		
September	60	2	A
Sunday	311	2	A
Thursday	98	3	A
Tuesday	135	2	A
Wednesday	101	3	A
William(s)	433	1	
Wisconsin	128	2	

LIST III

197 WORDS (312 WORDS BEFORE ELIMINATION)

Adam	4		
Albert	3	1	
Albuquerque	5		
Alfred	20	1	
Alice	100	1	
Allen	2		
Allie	4		
American	28	1	
April	15	2	A
Arthur	4	1	
Avis	21		
Baptist	6	2	
Belleville	2		
Bible	4	1	
Blanche	2		
Boston	2	1	
Bryan	6		
Burlington	2		
Byron	2		
California	42	2	
Canada	2	1	
Canterbury	2	1	
Carl	7		
Catholic	12	2	
Champaign	48		
Chesapeake	2	1	
Chinatown	2		
Christian	16	2	
Claude	8		
Colorado	17	1	
Columbus	4	1	
Congregational	2		

Coronado	5	1	
Daisy	3		
Daniel	17	1	
Danville	54		
Davis	4		
Delos	6		
Donald	8	1	
Dora	5		
Dorothy	41		
Drake	3		
Easter	9		
Edna	3		
Edward	25	1	
Eleanor	3		
Eliza	9		
Elizabeth	19	1	
Ellen	13	1	
Elmer	2		
Emma	7	1	
England	20	2	
English	16	2	
Episcopal	8	1	
Epworth	6		
Ethel	2		
Etta	27		
Europe	4	3	
Evan	2		
Everett	2		
February	14	3	A
Florence	11	1	
Florida	14	1	
France	11	1	
Frances	5	1	
Francis	8	1	
Fred	4	1	
French	12	1	
Frenchman	2		
Gabriel	8		
Gene	4		
George	30	3	
Georgia	14	2	
German	18	1	
Glasgow	5	1	
God	45	1	
Grace	32	1	
Hallowe'en	3	1	
Harold	14	1	
Harvey	5		

Hattie	49		
Hazel	3		
Helen	199	1	
Herbert	9		
Howard	4		
Huldah	21		
Indiana	7	3	
Indianapolis	7	1	
Iowa	5	2	
Irishman	2		
Italian	6	2	
Italy	5	2	
Jack	5	1	
Jackson	15		
Jacob	2	1	
James	3	1	
Jessie	36	1	
Jewish	2		
John	15	1	
Johnson	4		
Joliet	4	1	
Joseph	76	1	
Julia	47		
Kansas	21	1	
Kate	54	1	
Katharine	8	1	
Kenneth	6		
Latin	8		
Lee	3		
Lincoln	4	2	
Lloyd	5	1	
Logan	4		
Lois	4		
Lola	3		
London	39	2	
Lord	3		
Loring	15		
Los Angeles	12	1	
Lottie	11		
Louis	169		
Lucy	32	1	
Lutheran	3		
March	20	2	A
Margaret	12		
Marion	12		
Mary	9	2	
Mason	16		
Matthew	5		

Maud	6	
Methodist	9	1
Mexican	2	
Michigan	2	1
Milan	2	
Milwaukee	14	2
Minneapolis	6	1
Minnesota	28	1
Minnie	6	1
Mississippi	4	2
Missouri	10	2
Mitchell	12	
Mollie	12	
Mormon	3	
Morris	8	
Nancy	4	
Nebraska	3	1
Ned	6	1
Nellie	6	
Nevada	3	1
New York	17	2
Northwestern	5	
Oakland	5	
Ohio	4	1
Oliver	2	
Omaha	6	1
Oregon	4	1
Ottawa	11	1
Pacific	7	2
Pansy	313	
Pasadena	3	
Paul	3	1
Pennsylvania	2	3
Perry	22	
Peter	7	1
Presbyterian	3	1
Prince	5	1
Raymond	5	
Robert	3	1
Rome	3	2
Roosevelt	7	
Rose	10	
Rosecrans	2	
Roy	9	1
Ruth	61	1
Sacramento	11	
Samuel	4	1
Sampson	4	
San Diego	43	
San Francisco	20	
Santa Claus	5	1
Santa Fe	2	
Sheridan	3	
Spencer	3	
Springfield	7	
Stanley	20	
Stella	7	
Susan	41	1
Swiss	2	
Taft	8	
Tennessee	2	1
Terre Haute	6	
Texas	13	
Thanksgiving	27	
Theodore	15	
Thomas	4	
Titanic	3	
Walter	9	
Washington	23	2
Wilson	17	
Yellowstone	2	

A presentation of List IV of the proper names will be unnecessary. Of eight hundred sixty-two names found in it, five hundred forty-four occur but once; and the vast majority are mere local names of families, or given names more or less uncommon. Only one hundred one of the five hundred forty-four are found in any of the spellers.

Separate tabulation of foreign terms

Since each of the three spellers consulted contained one or more special lessons on foreign terms not yet very fully naturalized in American speech, a special list of these terms was kept separate as they occurred in the correspondence. Thirteen such words occurred with a total frequency of fifteen. *Elite* alone occurred more than once. Only six of the thirteen were found in any of the spellers.

CHAPTER XIII

SPELLING TEXTS AND SPELLING NEEDS

Vocabularies of spelling-books

LET us first examine the word lists of the three spellers previously referred to, and see in how far the ordinary text meets the requirements in respect to a spelling vocabulary. The relation of the vocabularies of the three texts, excluding proper names and foreign terms, is as follows:

	Speller A	Speller B	Speller C
Words found in one text only.......	143	5,785	1,082
Words found in Spellers A and B...	633	633	....
Words found in Spellers A and C...	132	....	132
Words found in Spellers B and C...	...	3,101	3,101
Words found in all three texts......	1,613	1,613	1,613
Total for each text............	2,521	11,132	5,928

Total of different words for all texts, 12,489.

The variation among these books with respect to extent of spelling vocabulary indicates that the makers of spelling-books differ in their opinions as widely as have the educators whose estimates have already been cited in Chapter IX. Not only in regard to total number of words are there striking differences, but also in regard to community of vocabulary. Though Speller A has less than forty-three per cent. of the vocabulary of C, hardly seventy per cent. of the list is the same as C's. That is, the chances of finding any given word of A's vocabulary in C are less than seven in ten. Conversely, the chance of finding any given word of C's vocabulary in A is less than three in ten. Of the total twelve thousand, four hundred eighty-nine different words, only sixteen hundred thirteen, or less than thirteen per cent., are common to all the spellers.

Relation of vocabularies of spellers and correspondents

If the lists of the spelling-books be tested by the lists secured from the correspondents, it develops that four thousand, three hundred fifty-one different words, or only thirty-five per cent. of the total, ever appeared in the letters. To determine the extent to which the judgments of the three authors united was more reliable than the judgment of any one author, the one thousand, six hundred thirteen words common to the three texts were followed out in the correspondence. Seventy per cent. of these appeared in the correspondence—twice as large a proportion as for the total twelve thousand, four hundred eighty-nine words. However, it would seem that so short a list as sixteen hundred thirteen, if at all well chosen, should be represented by much more than seventy per cent. of its strength among the five thousand, two hundred different words of the correspondence. Furthermore, one would normally expect that this seventy per cent. (eleven hundred thirty-six words) would fall most heavily in List I (see page 157), less heavily in List II (see page 161), and not to any large extent in List IV. However, they were distributed as follows:

51 fell in List I, constituting 27.4% of said list
193 fell in List II, constituting 33.4% of said list
620 fell in List III, constituting 28.1% of said list
272 fell in List IV, constituting 12.2% of said list

Clearly then, the spellers examined have not placed emphasis where it is most needed.

Passing now to the proper names listed in the spellers, one finds a still greater lack of harmony.

	Speller A	Speller B	Speller C
Words found in one text only........	167	53	177
Words found in Spellers A and B....	13	13	...
Words found in Spellers A and C....	41	...	41
Words found in Spellers B and C....	...	24	24
Words found in all three texts.......	25	25	25
Total for each text............	246	115	267

Total different words for all texts, 500.

Speller B, with a general vocabulary about twice as great as C's, and four times as great as A's, has less than one-half as many proper names as either of the others. Only five per cent. of the total of five hundred proper names are common to all three spellers, and only twenty-one per cent. show any degree of community. As far as one may generalize from these three spellers, the chances of finding the same proper name in two spellers picked up at random ranges from sixteen in one hundred to forty-two in one hundred. If it were desirable so to do, curious differences might be pointed out, showing a tendency of one book to "specialize" in American geography, and another in foreign geography and history, or perchance in Christian names. Two hundred sixty-nine of these five hundred proper names do not appear at all in the list of twelve hundred nine proper names found in the correspondence, and five of the twenty-five common to all the spellers were among these two hundred sixty-nine.

But the climax of disparities between the texts is seen in the lists of foreign terms found in the spelling-books. They tabulate as follows:

	Speller A	Speller B	Speller C
Words found in one text only	12	62	24
Words found in Spellers A and B	2	2	..
Words found in Spellers A and C	4	..	4
Words found in Spellers B and C	..	6	6
Total for each text	18	70	34

Total different words for all texts, 110.

Not a single term was common to all the texts, and less than eleven per cent. of the total showed any degree of community. Only six of the whole one hundred ten appeared in the correspondence; nor were any of these six among the twelve found in more than one speller. Had the compilers of these books taken words at random from a French dictionary their offerings could hardly have been less related to the pupil's needs.

Limitations of any speller

But if a complete inventory be taken of the data of the last chapter, we must go further than to say that the spellers contain a vast amount of useless material. They have failed to some extent to include the necessary words, as the following table shows:

WORDS FOUND IN NONE OF THE SPELLERS

General.
List I—1 (*in*).
List II—11 (*anyway, awfully, crazy, everything, job, lately, maybe, pa, per, sick, silk*).
List III—202 (the type is shown by such as the following: adverbs, e. g., *absolutely;* nouns on verb stems, e. g., *alteration, announcement;* unusual compounds, e. g., *afire, apiece;* verbs on adjective stems, e. g., *straighten;* compounds of simple words, e. g., *anywhere, bedtime;* prefixes in *in-* and *un-*, e. g., *inland, unsatisfactory*).
List IV—625 (many of the same type as for List III, though the number of new stems is larger).
Proper.
List II (after elimination)—7 out of 30.
List III (after elimination)—99 out of 197.
List IV—761 out of 862.
Foreign terms—7 out of 13.

From such an exhibit it might seem that our spellers should be larger rather than smaller. Every one of the thirteen correspondents referred to in Chapter X contributed in varying amounts to the two thousand, two hundred thirty words of List IV. There seemed to be on the part of every person a specific demand for words not used by any of the other twelve. This being true, it becomes evident that no speller can fill the need of individuals completely. In view of the plastic state of our language, with the constant accretion of words from various sources and the decadence of standard words so that they become obsolescent or obsolete, the unabridged dictionary itself can not meet all possible needs of every person. The individual obviously must make new linguistic as well as other new adjustments from time to time throughout his life.

Individual writing vocabularies

That the vocabularies of different persons vary widely is generally believed; but their variation may nct be in any sense due to the number of words people know how to spell. If a connection of this sort did exist, one might be justified in putting such emphasis upon spelling as was the practise a generation ago. It has furthermore not been demonstrated that the vocabulary of a liberally educated person is wider in written expression than that of one not so highly trained. It was to shed some light upon this problem that the extent of each correspondent's vocabulary was carefully noted as far as could be done with the limited quantity of correspondence. The running words of each correspondent's letters were counted off a thousand at a time. A record was made of the number of different words employed on the first thousand; and the number of new words introduced in each succeeding thousand was also recorded. Not less than five thousand running words was accepted from any correspondent, since it was felt that this number was necessary in order to gain a fair idea of the extent of a person's vocabulary. It will be seen from the table exhibiting the data thus gained (see following page) that no person fully exhausted his vocabulary; nor, as already suggested, does it seem probable that any normal individual's vocabulary could be exactly ascertained if his correspondence were pursued indefinitely.

Some interesting revelations are made by this table. N. exceeds in vocabulary her daughter E., who has had at least twice the schooling her mother enjoyed. However, N. notices everything of a personal nature, and feels a keen interest in people. E. writes mostly about herself, and hence has a narrower range of experience to communicate. H., another daughter, only slightly exceeded N. in vocabulary used at the end of five thousand running words. At the end of twelve thousand running words S. exceeded both her adult college-educated children, P. and W. In neither spelling capacity

VOCABULARIES OF THIRTEEN PERSONS AS REVEALED BY SUCCESSIVE THOUSANDS OF RUNNING WORDS OF CORRESPONDENCE

Thousand	1st	2nd	3rd	4th	5th	Total	6th	7th	8th	9th	10th	Total	11th	12th	13th	14th	15th	Total	16th	17th	18th	19th	20th	Total
P..........	339	206	122	107	97	871	102	85	68	76	62	1264	77	63	51	70	44	1569	46	39	28	35	34	1751
H..........	294	133	80	62	55	624	43	40	43	45	35	830	32	31	29	27	20	969	27	38	43	33	19	1129
A..........	323	141	134	109	70	777	76	83	76	76	92	1180	68	78	64	82	40	1512	41	60	31	61	58	1763
S..........	333	162	143	101	114	853	86	74	100	88	66	1267	80	60										
O..........	332	164	167	88	120	871	78	88	66															
G..........	337	183	126	83	84	813																		
E..........	240	120	99	77	56	592																		
N..........	276	124	95	55	59	609																		
W..........	337	184	87	82	109	799	111	139	82	54	52	1237	55	60	37	74	74	1537	47	32	52	52	33	1753
J..........	351	226	183	137	145	1042	69																	
C..........	388	181	251	194	136	1150																		
M..........	360	198	170	169	126	1023																		
B..........	339	177	119	98	86	819																		

Thousand	21st	22nd	23rd	24th	25th	Total	26th	27th	28th	29th	30th	Total	31st	32nd	33rd	34th	35th	Total	36th	37th	38th	39th	40th	Total
P..........	47	42	58	36	33	1967	31	38	42	39	42	2159	34	21	31	51	40	2336	64	60	62	34	19	2575
H..........	22	38	24	22	19	1254	14	27	15	31	18	1359	15	17	14	25	19	1449	15	30	25	15	12	1546
A..........	44	48	47	70																				
W..........	35	25	50	34	44	1941	41	38	17	19	22	2078	27	37	18	26	39	2225	25	24	21	18	17	2330

nor reading vocabulary is there any comparison to be made between her children and herself; but S. is a wide reader, and has acquired rather cosmopolitan interests. It could hardly need plainer demonstration than these two instances afford that writing vocabulary is dependent, not on spelling ability or formal education, so much as on largeness of view and breadth of interest, which in many cases is favorably affected by education. Changing scenes and the character of one's correspondent also affect the size of one's vocabulary. C. made an unusual record on his first thousand words, because of a nervous habit of jumping quickly from theme to theme in his ordinary letters. In his diary of domestic and local happenings he falls to a very common record on his second thousand words; but thereafter he eclipses all others in recounting the sights and events of an extended trip through the West. P., after falling slightly behind W. at twenty thousand, overtakes and easily passes him in describing the experiences of travel and of changed surroundings. A. too has a very ordinary record until she begins to write of her European tour, when she quickly shoots ahead of all the others. G. falls sensibly behind O. at five thousand, because she, a graduate student, is undergoing routine life as a teacher, while O., a high-school graduate, is visiting relatives and friends most of the time and experiencing frequent changes of scenes. Practically all interruptions in the descent of the number of vocabulary accessions from thousand to thousand for each correspondent can be explained on the bases already mentioned.

Vocabularies in family and other correspondence

In the list *published* by Ayres, a total frequency of seventeen hundred fifty-seven is assigned to proper names, *Mr., Mrs., I* and *a,* words not considered in the present study. Since in Ayres' study the *unpublished* portion of his list comprised twelve per cent. of the total number of running words, it seems likely that some two thousand running words of his study (seventeen hundred fifty-seven increased by twelve per cent.) would have been disregarded in making up our own general list. Put otherwise, he tabulated about twenty-one thousand five hundred running words according to our mode of reckoning (twenty-three thousand six hundred twenty-nine decreased by about two thousand). His *published* list of five hundred forty-two different words shrinks to four hundred sixty-seven by the elimination of proper names and reduction to a dictionary basis. If the same percentage of shrinkage holds for the *unpublished* portion of his list, his total of two thousand one distinct words shrinks to about seventeen hundred twenty-five.

We have, then, Ayres' composite vocabulary of seventeen hundred twenty-five in a total of twenty-one thousand, five hundred running words to compare with four individual vocabularies in the present study (see table on page 232). At twenty-one thousand five hundred A. and P. were each about a hundred words above Ayres' composite vocabulary, W. was seventy-five above it, but H. had fallen a long way behind. It is impossible to believe, in view of the length of our general List IV, that any ordinary individual could show a vocabulary equal to that gleaned from hundreds of persons combined, except by being placed in a situation where he would have occasion to discuss a greater range of interests. The explanation in this case is that family correspondence and letters of a friendly nature call for more diversified expression than stereotyped business communications, however miscellaneous in character.

Sex differences in spelling vocabulary

This individuality of spelling vocabulary, while naturally directed somewhat along technical lines of vocational importance to the several writers, is a more uncertain quantity in many ways than sex differences in writing vocabulary. All words in general Lists I, II and III were inspected in order to furnish a list of words which show a wide variation in use as between the sexes. "Wide variation" was construed as meaning a change from List I of one sex to List III of the other, from List II of one sex to List IV of the other, from List III of one sex to non-occurrence in the other, or any greater degree of change. Words with a frequency of only two, however, were not taken into account.

The two lists, one showing dominance with the women, the other with the men, were then subdivided according to a scheme set forth below.

WORDS DOMINANT IN LETTERS OF WOMEN

A. Articles of food, terms relating to consumption or preparation thereof:

appetite
apple
bacon
bake
banana
beef
berry
biscuit
boil
bread
breakfast
burner
butter
cabbage
cake
candy
casserole
cheese
chicken
chocolate
cook
cooky
cracker
cream
custard
dessert
fish
food
gas
gasoline
goose
grape
gravy
griddle
grocery
jelly
juice
lard
milk
orange
oven
oyster
pail
pan
pear
plum
pork
pudding
sauce
sirup
soup
starve
stew
stove
toast
tomato
vegetable
yeast

B. Articles of wearing apparel, textiles, terms closely related thereto:

apron
bead
belt
braid
button
cape
chain
cloth
clothe
corset
cotton
cuff
dressmaker
embroider
embroidery
flannel
fur
gem
glove
handkerchief
legging
mend
mitten
nightgown
patch
pattern
pin
plaid
plait
plush
rip
rubber
ruffle
sample
sash
satin
scissors
sew
shirt
shoe
silk
skirt
sleeve
stitch
tape
tie
undershirt
velvet
waist
wool

C. Parts of body, care of same, personal appearance:

arm
bathe
bowel
fat
hair
head
kidney
limb
neat
nose
stomach
stylish
swell

D. Animals:

animal
chicken
fish
goose
kitten
moth
mouse

E. Esthetics, color:

admire
art
beautifully
black
bloom
blossom
disgust
gallery
glorious
lovely
museum
muss
orange
perfect
tan

F. Diseases, their treatment, concrete sensitivity for good or ill, terms closely related thereto:

ache
afraid
aggravate
ail
alarm
bronchitis
burial
bury
camphor
chill
cough
crazy
cure
dentist
die
dizzy
dread
envy
fond
headache
heal
horrid
hospital
hysterics
lame
medicine
nervous
nurse
prescription
pulse
relief
sick
swell
tease
tiresome
vomit
zero

G. Parts of house, furniture and furnishings:

basement
bathroom
bedroom
bowl
closet
cottage
furniture
grate
mat
mattress
napkin
pillow
plate
portière
quilt
saucer
spoon
teapot
towel
tub

H. Measures:

barrel
bushel
peck
pint
pound
quart
tape
weight

I. Correspondence:

envelope
ink
pencil
postage
stamp

J. Other domestic activities and relationships:

homelike
housekeeper
housework
launder
maid
mop
roomer
scrub
sweep

Unclassified (possible membership in List K or L indicated in parentheses):

accommodation
acid
acute
affectionately
alcohol
alike
altitude
anniversary
asleep
assembly (L)
bag
baggage
balance
behave
bet
beyond
bid
birthday
blind
bottle
bush
caller
carelessness
carpenter
carriage
channel
chautauqua
check
chore
circular
companion
connect
consequently
contribution
crack
cultivate
daddy
dean
description
detain
dispose
draft
driver
east
economize
elaborate
elsewhere
empty
entirely
errand
eve
exhaust
farm
fill
firecracker
fold
fuss (K)
game
goodby
goodness
greet
grip
ha
handy
harvest
heap
hearty
helper
hilly
hunt
improvement
interrupt
jump
kill (K)
knife
launch
law (L)
lively
load
logic
lonely
loop
loose
luck
mass
matron
maybe
memorial
merry
message
missionary
muscular
mutilate
nap
naughty
nearby
neighbor
noisy
notwithstanding
oblige
occupant
onto
overdo
package
pad
parcel
phone
pipe
pond
pour
precious
presume
progressive
pronounce
puff
quietly
rainy
rake
ranch
readiness
remodel
respectable
rig
rope
rub
sail
sailor
sale
satisfactory
scramble

scream
sentence
shoot
sidewalk
sink
sixty
skim
slice
slick
smooth
socialist (L)
soft
somewhere
spell
sprinkle
stir
stoop
storage
strength
strenuous
strip
stupid
sunny
surely
tail
tank
telegraph
temperature
tent
thankful
thereabouts
thin
thorough
tinker
tiny
tour
toy
trifle
trolley
twin
unpack
unusual
vessel
wagon
warmly
weekly
whistle
widow
wind
wipe
wireless
woman
worthy

WORDS DOMINANT IN LETTERS OF MEN

K. Terms of aggression, contest and domination, physical and mental:

argument
attack
control
convince
defeat
effort
fight
force
loss
oppose
permit
solve
struggle
submit
successful
suspect

L. Institutional life and social organization:

administration
agency
associate
college
convention
county
customary
discuss
enroll
inaugurate
majority
member
preside
public
representative
term

Unclassified (possible membership in Lists A-J indicated in parentheses):

above
absent
absolutely
accept
add
admit
advantage
agreeable (F)
aid
altogether
amuse
assure
attend
await
civil
danger
definitely
deny
descend
directly
dismiss
dismissal
dividend
drift
earn
education
encouragement
error
especially
fact
favor
feature
final
follow
fourth
geography

guilty
guy
harmony
honor
hopeful
human
impress
inconvenience (F)
increase
injury (F)
instance
intrude
kindly
literature
mention
method
naturally
nature
necessary
occur
offend (F)
opera
outrage (F)
personal
personality
personally
pet
physiology
portion
practise
prefer
probable
proceed
prod
produce
recess
refer
reference
religious
reply
reverse
service
shadow (E)
standard
stenographer
suddenly
sufficient
term
thus
trust
upon
value
violin
wage (s)

SUMMARY OF SEX DOMINANCE

List	Women	Men
A	58	
B	50	
C	13	
D	7	
E	15	1
F	37	5
G	20	
H	8	
I	5	
J	9	
K	2	16
L	3	16
Unclassified	183	90
Total	410	128
Deduct counted twice	6	
True total	404	128

Probably no two persons could agree that all words have been properly assigned in these lists on sex difference, inasmuch as a certain term may be used in a variety of situations. Thus it happens that some words occur in two lists. Only three or four of the eight women correspondents were at the time of their writing carrying heavy domestic responsibilities, so it may be inferred that general social conditions, if not heredity, have impressed certain traits upon femininity, and thus established a sort of feminine type of spelling vocabulary. Lists K and L are likewise in harmony with contemporary sociological, psychological and biological research and theory, in pointing out a masculine type, though the totals for sex dominance show that the feminine type is much more homogeneous than the masculine, another fact which is in harmony with contemporary thought. It is predicted that adjustment of elementary-school courses to sex needs will sooner or later cause some differentiation in spelling work required of boys and girls. At present a certain amount of incidental spelling in connection with the special subjects, such as domestic science, manual training and civics, offers most hope of a satisfactory solution.

Relation of time economy to spelling needs

In the course of a discussion which one of the writers held recently with two grammar-school boys on the applicability of their spelling lessons to their composition, one of them declared that he had no idea of ever using many of the words of the speller, since he was familiar with plenty of short common ones that did just as well. How far an adult's narrow writing vocabulary is a matter of choice for the sake of economy, rather than a result of lack of culture, it is impossible to say except in individual cases. But as bearing upon this matter, a quotation may be given from a recent writer in the Chicago *Tribune,** who discussed the subject—"Is Letter-Writing Becoming Passé?" She says:

> "We have no time for long dissertations, either about books or scenery, or our inmost feelings and impressions. Letter-writing has ceased to be regarded as a pastime; to the majority it is nothing less than a stern duty with little pleasure in it. And as a duty it must be performed accurately with no superfluities or digressions. We rarely find ourselves 'wishing to' write a letter, but we frequently 'have to' do so, and to get the business over both quickly and efficiently we gather up all the facts to be communicated and set them down in as few words as possible."

A young business man in a personal letter not long ago said:

> "Our vocabularies are certainly limited, and the rush of business seems to be in some ways against their development. I know that very often in dictating I substitute a common word for one which is more applicable but less likely to be understood by the foreign class addressed. The average reader won't consult a dictionary, nor puzzle long over difficult words."

---

* March 9, 1913.

That such conscious or unconscious economy is a vital force in the selection of a writing vocabulary appears from the tabulation of general List I and the first and last ninety-three words of Lists II, III and IV, by number of syllables.

	One syllable	Two syllables	Three syllables	Four syllables	Five syllables	Total
List I	152	30	4	...	...	186
List II	93	72	18	2	1	186
List III	40	88	34	20	4	186
List IV	31	76	42	29	8	186

Even a hasty glance at List I will show that it contains many words which are commonly misspelled. All teachers know that most of the troublesome words in pupils' papers are relatively short, so it is clear that the frequency of the short words is not due to the simplicity of their spelling, but rather to that passion for conservation of energy which consciously or unconsciously accompanies all effort that is not an end in itself.

The words that do the work

Just how great a rôle these short, sharp Anglo-Saxon words play in written expression can be best appreciated from a few comparisons. Ayres found that nine words constituted over one-fourth and forty-three words over one-half of the whole of the correspondence he examined. Reducing his list to a dictionary basis, we leave the figures practically the same. The nine remain unchanged, but the forty-three probably become forty-five. For the lists derived from this investigation, the corresponding figures are nine and forty-two, all monosyllables. Since the exact total of the frequencies in List III is fifteen thousand, two hundred forty, and that for List IV is two thousand, nine hundred forty-three, Lists I and II (seven hundred sixty-three words) include between ninety and ninety-one per cent. of the total words written in ordinary correspondence. Not only do such generalizations hold for a number of persons treated collectively, but the same conclusion is fairly warranted for any single individual. As a test a calculation was made of the proportions which the nine most frequent words spoken of above constituted in the correspondence of each of the thirteen correspondents. The theoretical level would be slightly over twenty-five per cent. for each person; the actual per cent. in every case fell between twenty-three per cent. and twenty-eight and two-tenths per cent., though naturally there were marked personal variations in the frequency of any one word, due to different habits in sentence structure and the use of alternative expressions. The forty-two words which constituted just above fifty per cent. of the total words for all correspondents taken collectively constituted between forty-six and fifty-five per cent. for all correspondents taken individually. Lists I and II, which theoretically would constitute ninety per cent. for any one individual, actually made up from eighty-four to ninety-seven per cent. of the total words written by each correspondent.

An interesting check on the results given in the preceding paragraph was gained from an entirely different source. The files of the Chicago *Tribune* for June and July, 1913, were consulted and a total of five thousand words was tallied from the communications appearing on the editorial page under the titles of "The Voice of the People" and "The Friend of the People." A considerable amount of ground was covered by selecting only the first uncapitalized word of each line. The same identical nine words again made up slightly over a quarter of the total, the same forty-two words comprised forty-two and five-tenths per cent. as against one-half in family correspondence, while Lists I and II comprised over seventy-nine per cent. of the total, as against ninety per cent. in family correspondence. It is highly significant that the percentages remain so nearly the same. The communications printed in the *Tribune* are scarcely to be termed typical of the needs of common people. Unlike most family correspondence, they deal with many technical matters and are full of legal terminology and political discussion. Furthermore, they are largely impersonal in their nature, and contain so few personal pronouns as to account for the slight discrepancy between seventy-nine and ninety per cent.

CHAPTER XIV

RÉSUMÉ AND CONCLUSIONS

RETRACING the ground we have covered, we see that as a result of the study of spelling rules with university freshmen and high-school students, it was found that, if we omit one particular rule, those who possessed some knowledge of rules showed a slight superiority over their fellows in the university group who knew no rules, and a slight inferiority in the high-school group. Most of the persons tested had had thorough instruction in spelling rules at periods ranging from six weeks to ten months previous to the tests, but they had retained very little knowledge of them. Much of what they had remembered was defective, erroneous, and was not applied in their spelling in the tests. Spelling rules seem to be for the most part too long and involved, and there are too many exceptions to every rule to make them easily applied by students. One short, simple rule to the effect that monosyllables ending in *ie* change the same to *y* before suffixing *ing,* is doubtless useful, but it applies to only a half dozen words.

The attitude of the students themselves respecting the value of rules is skeptical. If taught at all the rules probably ought to come very early in the child's school life. In later years it is seemingly impossible to develop a reflective attitude toward what should be mainly a mere sensori-motor or automatic process, without producing the disturbed inhibitory results that usually follow from such an attitude.

Errors in spelling may be grouped into two classes. One is the linguistic lapse or chance error that is due to a wandering of the attention from the material being written. Lapses are identified by the correct spelling of the same word on other similar occasions, or by the promptness with which the pupil corrects them when he is asked to look over what he has written. Lapses should be treated by teachers as less serious than other mistakes, and they should not draw the teacher's attention from the more important points to be observed in the presentation of the word. Lapses may be guarded against by giving pupils opportunity to go over their work a second time and correct errors before submitting it. The corrections which they make in this way should not be penalized so heavily as the errors that are due to lack of knowledge.

The second sort of mistake is the *bona fide* spelling error. If misspellings in large numbers are examined it will be found that for almost any word from one-third to two-thirds of all difficulties are occasioned by some special letter or syllable. This critical point in a word may or may not be one to which a rule applies. Its location is best accomplished by the tabulation of many misspellings of the word. The most fruitful causes of error are (1) mispronunciation on the part of the teacher and the pupil, (2) the drawing of phonetic analogies from other words, (3) obscure or elided vowels, and (4) double or silent letters. Particular causes of error predominate in particular cases, being determined largely by the type of imagery upon which one relies in spelling. The types of letters (ascenders, descenders and single-space) which give a word its distinctive pattern, have much to do with the particular direction which error may take in that word. For example, in one word a silent letter is very likely to be omitted, in another it is almost sure not to be omitted.

A study of the life history of the acquisition of some difficult spellings shows the persistent effect of spelling errors. Whatever be the reason for its occurrence in the first place, the initial error in the spelling of a word is apt to persist with great tenacity. This warrants the proposition that children should not be allowed to write their spelling lessons without careful preliminary study, as they are often tempted to do by the prevailing practise of leaving their study undirected and requiring a certain minimum grade for promotion in that subject. So far as a theory of progress goes in spelling attainment, there are not two stages in the mastery of words, but rather four stages. In the first stage a pupil habitually misspells a word in a particular manner; in the second stage his misspellings begin to vary; in the third stage occasional correct spelling occurs; while in the fourth stage correct spelling becomes habitual. Not all words necessarily pass through all these stages. Under proper supervision a word will never be permitted to become so thoroughly mislearned by a pupil as to show the same error time after time. Under normal conditions a word should pass through only the third and fourth stages mentioned above.

There is probably no such thing as complete transfer of the ability developed in column spelling over to contextual spelling. In the latter case lapses will be more numerous, and words not yet fully mastered are more likely to revert to an earlier stage of misspelling. The reason for this is the dispersion of attention over a larger and more complex field in contextual than in column writing. As long as loss in transfer occurs at all, the only ultimate test of spelling efficiency must be contextual writing, and dictated material will serve the purpose much less satisfactorily than original composition. Isolated spelling may nevertheless be the more economical means in the preliminary work of mastering words.

The efficiency of a method of presentation ought not to be judged by a test on immediate recall or by means of other than regular spelling material.

The method of sense presentation and the pupil's response thereto play a minor rôle as compared with the frequency of recall. Within two weeks after the presentation of a lesson, if there be no intervening review, the lesson is about as nearly lost as in a much longer period. Graphic spelling can be taught so as to secure the various advantages of oral spelling and avoid its disadvantages. Differences in the effectiveness of the two show up more plainly for individuals than for a group as a whole. As long as the spelling list is in advance of the pupil's needs for expression it is improbable that the mere teaching of the words in context creates a less formal situation, as far as spelling is concerned, than to teach them in column. Such a statement is true regardless of the fact that the significance of a word can of course best be grasped only when it is given a contextual setting. Comparative experimentation is difficult because the "school habit" of pupils has prejudiced them in favor of column teaching.

Close study of two pupils indicated that freedom in original composition, breadth of vocabulary employed, life, variety and naturalness of written expression are not the result of spelling ability. Their only relation to spelling is seen in the effect of undue spelling consciousness in retarding facility of expression. Other minor inferences drawn from the experiments in Part I are (1) the evil influence on spelling of those methods of teaching reading which delay too long the mastery of the alphabet, or direct attention too much away from the letters of words; (2) the disintegrating effect produced in one's own spelling by exposing to one the errors of others; (3) the disadvantage of a reflective attitude toward spelling; (4) the rareness of pure types of spellers, such as audiles or visualizers; (5) and the impropriety of dwelling long on syllabication after pronunciation has been well worked out.

In Part II it was shown that every-day needs are not consulted in the framing of spelling lists, but that the dogma of formal discipline, *ex cathedra* judgment, and the domination of common schools by higher institutions have been the forces at work. We seem to have various ideas regarding the extent of the vocabulary which a pupil should be required to spell. But it is not formal education so much as breadth of interest and variety of experience which determine the size of one's spelling vocabulary. Sex needs differ sufficiently so that one may raise a question as to differentiation between the spelling requirements for the two sexes. There seems in actual life to be a seeking after the word that is the shortest for the writer and the simplest and most easily understood by the one addressed. We need to narrow the field of subject-matter in spelling and cultivate it more intensively.

The examination of a vast body of family correspondence collected from widely separated sources shows that less than a dozen words do one-fourth of our work in writing, that about fifty do a half of it, and that less than eight hundred do nine-tenths of it.

The words in Lists I and II (pages 157-161) should be thoroughly mastered by every elementary-school pupil. List I with its large number of personal and relative pronouns, simple adverbs, prepositions, conjunctions, numbers, auxiliary verbs, etc., forms the very skeleton of all English expression. List II includes a large proportion of the concrete nominal, verbal and adjectival terms that form the gist of the content of our expression.

The words in List III come next in importance and should receive careful attention. They should be drilled on particularly in the three or four higher grades, (1) because they are less vital than the words in Lists I and II for those who may have to drop out of school early; and (2) because they generally come to function in the child's life at a later date than those of Lists I and II. If further pruning is necessary it must begin with List III. Additional study is needed with a larger number of persons to allow other words of possible but so far *undemonstrated* utility to pass out of List IV into List III. As such study proceeds, standards for eligibility to List III must be raised, the possible result being that some words now included therein will be dropped and replaced by others. To state it differently, Lists I and II should be considered as fixing a minimum for the present, and List

III as indicating the maximum for elementary pupils.

To this maximum of two thousand, nine hundred ninety-three words with their grammatical modifications there must be added a certain number of useful proper names. The character of this list will be much more influenced by the local and individual environment than the general lists of words will be. Fifty-seven per cent. of the general list of five thousand two hundred words comes in Lists I, II and III, but with proper names this per cent. drops to twenty-nine. Over a fourth of List II and over a half of List III of the proper names falls outside of all the spelling-books. Hence one can hardly escape the conviction that a child would do even better to spend his school-days in learning to spell the names of all his schoolmates and neighbors than in learning the orthography of any considerable number of geographical and historical terms. Every child should know how to spell the names of the days of the week, the months of the year, *Christmas, Thanksgiving, Hallowe'en, Easter* and other important festal occasions which are not of denominational character, the names of a half dozen of the more prominent local religious denominations, the names of half a dozen of the locally more important nationalities (not nations), the names of his nation, his own state and other states in the same section of the country, the half dozen chief cities of the nation, and the half dozen largest centers in his own state, a select list of possibly forty given names, half for boys and half for girls, to include those which seem most common in the immediate locality. The limit in proper names would be about a hundred. The lists given in the preceding chapter are suggestive only of the size and scope of an appropriate list.

THE END

APPENDIX

APPENDIX

WORDS USED SPONTANEOUSLY BY PUPILS

THE three following lists, totaling eleven hundred fifty-eight words, are selected from the vocabulary which Mr. Homer J. Smith, now of the Milwaukee Trade School, found in the examination of seventy-five thousand running words of the spontaneous compositions of children. Twelve thousand five hundred words were taken from each grade from the third to the eighth inclusive. The children were enrolled in the public schools of Madison, Wisconsin, a typical city of twenty-five thousand inhabitants. List I includes words used by the pupils of each grade; List II, all others used by at least three of the six grades; List III, those used in only two different grades. The principle of selection then is not absolute frequency of occurrence, but universality of use through the grades, a principle similar to that which was followed in making up general Lists I, II and III of the preceding pages. It will be observed that the personal, possessive and demonstrative pronouns, the numerals, ordinals and articles, and about thirty of the most common prepositions, conjunctions, verbs and adverbs, besides local proper names, are omitted. A careful comparison of these lists with those given by the authors in the preceding pages will reveal marked differences between the vocabularies of children and adults, and will suggest means of motivation in framing spelling lists for children. The authors are under obligation to Mr. Smith for his permission to utilize the results of his work.

LIST I

272 WORDS

about
across
after
afternoon
again
almost
along
always
another
any
around
ask
aunt
away
awhile
back
bad
ball
basket
because
bed
before
begin
big
birthday
boat
born
box
boy
branch
break
breakfast
bring
brother
build
buy
call
camp
can
candy
car
care
carry
catch
cave
cent
chicken
child
cold
color
come
country
cousin
dance
dark
day
different
dinner
dish
dollar
door
down
dress
drink
drop
each
early
eat
egg
end
enough
even
ever
every
fall
family
far
farm
fast
father
feel
few
field
fill
find
fire
fish
floor
follow
foot
forest
friend
front
game
get
girl
give
glad
go
good
grandfather
grandmother
great
grind
grow
hand
happy
hard
hay
head
hear
help

hide
hold
home
hope
horse
house
hunt
ice
into
jump
just
keep
kill
kind
know
lake
land
large
last
late
laugh
learn
leave
like
line
little
live
long
look
lose
lot
lunch
make
man
many
master
meet
mile
morning
mother
much
must
myself
name
near
never
new
next
nice
night
noise
noon
o'clock
old
only
open
other
outside
over
own
pack
pair
party
pass
people
pick
place
play
poor
pretty
pull
put
quite
rabbit
raise
reach
ready
rest
rich
ride
right
room
run
same
say
school
think
through
seem
send
shoe
show
since
sing
sister
sleep
small
snow
some
something
soon
spend
spring
stairs
stand
start
stay
stop
store
story
street
sun
supper
table
take
talk
teach
tell
Thanksgiving
thing
time
tire
together
toward
town
train
tree
try
turkey
uncle
until
upon
use
vacation
very
visit
wait
wake
walk
want
warm
wash
watch
water
way
week
well
while
whole
will
wind
window
wish
with
woman
wood
work
write
year
yet

LIST II

542 WORDS

account
act
afraid
afterward
against
age
ago
ahead
aim
air
alarm
alone

also
among
anger
answer
anyone
anything
anyway
appear
apple
arise
arm
arrive
asleep
asylum
automobile
awake
awful
ax
baby
bag
bake
band
bandage
bank
bark
barn
bathe
bear
beautiful
become
behind
believe
bell
belong
below
beside
between
bicycle
bid
bill
bind
bird
bite
black
bleed
block
blossom
blow
blue
bluff
board
boil
book
both
bottom
bread
brick
bridge
bright
brown
buggy
bullet
bump
bunch
bundle
burn
bury
bush
busy
butter
button
cabin
cake
calf
candle
cap
capture
cat
cattle
cellar
chair
chance
cheese
cherry
chimney
chirp
choose
Christmas
church
city
clean
clerk
climb
close
cloth
coat
coffee
comb
comfort
company
cook
cooky
corn
corner
cost
cotton
count
couple
course
cover
cow
crack
creep
cross
crow
crowd
crumb
cry
curl
cut
danger
daughter
deal
dear
decide
decorate
deep
deer
depot
die
dip
direct
dirt
doctor
dog
doll
draw
dream
drive
drum
dry
duck
during
earn
edge
either
else
enjoy
everything
excite
expect
experience
eye
face
factory
fail
fat
feed
fellow
fence
fight
final
fine
finish
fix
flame
flower
fly
fond
football
force
forget
form
fox
free
freeze
fresh
frighten
fruit
fun
garden
gather
glass
gold
goodby
goose
grab
grade
grape
grass
green
guess

gun
hair
half
hall
handkerchief
hang
happen
harness
hat
heat
heavy
hello
hen
here
hickory
high
hike
hill
himself
hit
hitch
hole
honest
hospital
hour
humble
hunger
hungry
hurry
hurt
hut
idle
imagine
inch
inside
instead
intend
invite
iron
job
journey
kiss
kitchen
knife
knock
ladder
lady
lagoon
lamp
lap
lead
leaf
leg
lemon
lesson
let
letter
light
lightning
limb
lion
listen
load
lock
log
lonesome
love
low
lumber
machine
mad
maid
marry
marsh
matter
may
meal
mean
meat
merry
middle
milk
mill
mind
minute
miss
model
money
month
mountain
mouse
mouth
move
mud
need
negro
neighbor
nest
nobody
nose
note
nothing
notice
now
number
nut
oak
office
often
once
orange
orchard
ought
ourselves
package
pail
paper
parent
park
parlor
part
pasture
pay
peek
pencil
person
pet
piano
picture
pie
piece
pity
plan
plant
please
pocket
point
police
pony
pop
popcorn
porch
post
potato
pound
pour
present
price
pumpkin
pup
purse
push
quarrel
quarter
quick
quiet
race
rag
rain
rake
rather
read
real
receive
red
remember
reply
result
return
ribbon
rifle
ring
river
road
roar
robin
rock
roll
rope
rough
round
row
rug
rush
sack
sad
safe
sail
Santa Claus
satisfy
sauce
save

schoolhouse
scratch
see
seek
sell
serve
settle
several
sew
shake
shall
sheep
shell
shine
ship
shoat
shock
shop
shore
short
shout
sick
side
sight
silk
sink
size
skate
skin
sled
sleigh
slide
slip
slow
smoke
snake
soak
soil
soldier
somebody
sometime
son
sorrow
sorry
sound
speak
sport
spot
spy
squirrel
star
station
steal
steep
step
stick
stiff
still
stocking
stone
storm
stove
straight
straw
stream
strike
string
strong
stub
stumble
such
sudden
suit
summer
supply
suppose
sure
surprise
sweat
sweep
swim
tag
tail
tall
team
tear
telephone
tend
tent
terrible
thank
themselves
thick
though
thread
throw
tie
tip
today
toe
tomorrow
tonight
top
toy
track
tramp
trip
trouble
turn
umbrella
under
unless
vase
village
voice
wade
wagon
wall
war
wave
wear
weep
wet
wheel
which
whip
whistle
white
why
wide
widow
wife
wing
winter
without
wonder
word
world
worm
worth
wrap
yard
yellow
yes
yesterday
young

LIST III

344 WORDS

above
absent
accident
acorn
advance
adventure
aflame
agree
already
angleworm
animal
army
arrest
arrow
ash (es)
astonish
attack
attend
attic
baggage
bale
balloon
banana
barrel

baseball
bass
bat
battle
bay
beam
beat
beg
berry
blackboard
blanket
bloom
blot
bold
bond
bonfire
bother
breast
bridle
brook
broom
bruise
bug
burglar
canvass
card
carpet
cart
case
cause
cement
change
chase
chop
circle
class
clear
clothe
club
coal
coast
collect
colt
continue
cord
cottage
cozy
cracker

cranberry
crane
crash
crawl
creek
cripple
cruel
cup
cupboard
cutter
damage
dandelion
darling
dash
delay
delight
deliver
desk
destroy
diamond
dig
disappear
discover
disgust
dismiss
distance
dive
divide
dodge
dozen
drag
dragon
drown
dust
eagle
earth
easy
educate
enemy
engine
enter
entertain
everybody
examine
except
explore
fact
fair

fasten
fear
feast
feather
fever
fierce
fit
flag
flint
flock
flood
flour
flow
folk
food
former
fort
forth
forward
freight
fright
furnace
furniture
gin
graze
group
growl
guard
gust
hale
hammer
hardship
hatch
hatchet
haul
hawk
heart
heel
herd
herself
hook
horn
hŏse
hug
ill
Indian
industry
insect

interest
jacket
jail
jewel
joy
judge
keg
key
kick
king
kite
kitten
knapsack
knee
lack
lad
landlord
lawn
lone
loud
mail
manage
manual
march
market
match
mate
maybe
melt
mend
mince
mistress
mix
mound
muskrat
narrow
nature
naughty
necktie
nickel
noble
none
north
oat
occasion
offer
onion
operate

opposite
order
outdoor
paint
pan
pane
paralyze
particular
peanut
peep
pen
picnic
pigeon
pile
pin
pine
pink
playmate
plenty
plow
poison
pond
position
praise
press
prince
prison
probable
puff
pump
punish
purchase
raid
raisin
ranch
rat
rattle
remark
ripe
roof
root
saddle
scarce
scare
screen
screw
scorch
seat
seed
select
sense
shade
shape
shoulder
shovel
shut
sidewalk
sign
silver
sit
slate
smell
smooth
smother
society
soft
song
speed
splendid
spoil
spread
square
stack
stain
stalk
starch
starve
stock
strange
study
stuff
sunshine
surrender
surround
swallow
sweater
swing
sword
tablet
tack
taste
tease
theater
there
thimble
throat
thunder
ticket
tiny
tog
touch
trace
trap
treasure
trim
trousers
trunk
tunnel
unload
usual
value
verse
violet
weak
weed
wheat
where
win
wipe
wire
wise
witch
wither
within
wolf
worry
wound
yell

REFERENCE FOR FURTHER READING

REFERENCES FOR FURTHER READING

THE more important books and articles bearing directly on the problems of spelling are listed below. It has not been thought desirable to include in this bibliography the great volume of controversial literature called out by the agitation for "simplified spelling." The general literature dealing with the memory has not been included to any extent, since much of it can not be shown to have any bearing on spelling problems. The brief annotations may possibly be helpful to busy readers.

Abbott, Edwina E.—*On the Analysis of the Memory Consciousness in Orthography. Psychological Review,* Monograph Supplements, Vol. XI, No. 1, pp. 127-158.

Continued experiments with four trained subjects.

Ayres, Leonard P.—*The Spelling Vocabularies of Personal and Business Letters.* Russell Sage Foundation, February, 1913. 14 pp.

The first piece of work on the spelling vocabularies of common people.

Bailey, William B.—*Some College Spelling. Independent,* 67: 345-347.

Errors culled from about five hundred thousand running words of composition by college students. Spelling ability fairly well correlated with general ability.

Baird, J. W.—*The Psychology of Spelling. Bulletin Illinois Association of Teachers of English,* Vol. IV, No. 8.

Holds motor imagery most important for most pupils, as indicated by test of seven hundred children.

Bawden, H. Heath.—*A Study of Lapses. Psychological Review,* Monograph Supplements, Vol. III, No. 4.

Burnham, Wm. H.—*The Hygiene and Psychology of Spelling. Pedagogical Seminary,* 13: 474-501.

Summary of investigation of effect of different methods of presentation and other studies to date.

Carmen, E. Kate.—*The Cause of Chronic Bad Spelling. Journal of Pedagogy,* 13: 86-91.

Bad spelling is attributed largely to lack of habit or ability to observe.

Chancellor, William Estabrook.—*Spelling. Journal of Education,* 71: 488, 517, 545, 573, 607.

Principally important for Mr. Chancellor's list of the one thousand most commonly used words.

Charters, W. W.—*A Spelling "Hospital" in the High School. School Review,* 18: 192-195.

An account of the treatment of poor spellers in the high school of the University of Missouri.

Cornman, Oliver P.—*Spelling in the Elementary School.* Ginn & Co., 1902, 98 pp.

The chief feature of this monograph is the information it gives regarding the famous Philadelphia experiment in the incidental teaching of spelling.

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